DRAMA IN REAL LIFE: THE SAILOR VERSUS THE SEA
PAGE 64

Reader's Digest

CANADA'S MOST-READ MAGAZINE
JUNE 2023

9 DRINKS THAT QUENCH & HYDRATE
PAGE 13



MUST READ!

PROTECT YOURSELF FROM SCAMS
PAGE 30

WHEN **MUSIC** IS MEDICINE
PAGE 48

One Man's Mission to Feed Afghanistan
PAGE 6

A Father-Daughter Adventure to Remember
PAGE 82

Saving Organs, Saving Lives
PAGE 74

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Reader's Digest
A Trusted Friend in a Complicated World

Features

30
COVER STORY
PROTECT YOURSELF FROM SCAMS!
Want to foil fraud artists? Follow this primer.
BY MARC SALTZMAN

42
ENVIRONMENT
A Human History in Rust
There is beauty in what can be renewed.
DOROTHY WOODEND
FROM *THE TYEE*

48
HEALTH
When Music Is Medicine
As a therapy, music is showing real results.
BY ANICKA QUIN

56
SMILE
Good News About Housework
This dreaded task has hidden benefits.
BY RICHARD GLOVER

58
KNOWLEDGE
Lighting Up the Night
Each June, a special breed of firefly puts on dazzling light shows.
BY LEIGH ANN HENION
FROM *THE WASHINGTON POST*

64
DRAMA IN REAL LIFE
The Sailor versus the Sea
Laurent Camprubi was trapped inside the flooding cabin of his overturned boat. As the hours slipped by, so did his chances.
BY LISA FITTERMAN

74
NATIONAL INTEREST
Saving Lungs, Saving Lives
A pair of Canadian doctors are extending the best-before dates on transplants.
BY KARIN OLAFSON
FROM *THE WALRUS*

82
INSPIRATION
Lessons from My Daughters
Thanks to my all-grown-up girls, I've learned a whole new way to roll.
BY PETER CARTER

82



(LEFT HELMET) JENS KRISTIAN BALLE; (RIGHT HELMET) VICKY LAM

ON THE COVER:
PHOTO BY C.J. BURTON

World of Good

5 **Reasons to Smile**

EVERYDAY HEROES
6 **Made in Afghanistan**
Nasrat Khalid turned his artisan website into a grassroots disaster-relief organization.
BY DIANE PETERS

GOOD NEWS FROM AROUND THE WORLD
8 **Fighting Mosquito-Borne Diseases**
... and other good-news stories.
BY PATRICIA KAROUNOS

17



Health Digest

WELLNESS FOR BODY & MIND
13 **Drink Up!**
Nine hydrating beverages that aren't water.
BY ANNA-KAISA WALKER

17 **Do Blue Light Blockers Work?**
BY DIANE PETERS

18 **News From the World of Medicine**
BY SAMANTHA RIDEOUT

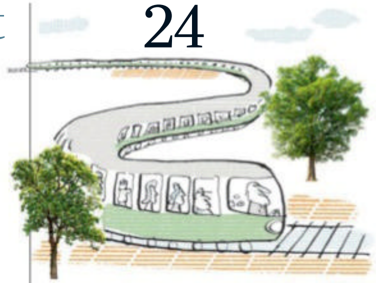
Art of Living

FOOD PASSPORT
21 **The Scoop on Gelato**
This Italian export has won fans all over the world.
BY RENÉE S. SUEN

13 THINGS
26 **Facts About Trains**
BY SAMANTHA RIDEOUT

29 **Quotable Quotes**

24



Humour

12
Life's Like That

20
Laughter, the Best Medicine

24
As Kids See It

Brain Games

90 **Puzzles**
92 **Sudoku**
93 **Word Power**
95 **Trivia**
96 **A Trusted Friend**

(GLASSES) KATE TRAYNOR; (TRAIN) SERGE BLOCH

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SPECIAL FEATURE

THE 2023 READER'S DIGEST

TRUSTED BRAND™ AWARDS

Celebrating its **15th year** in 2023, Reader's Digest has conducted an annual Trusted Brand™ Study to uncover which brands Canadians trust above all. This year, over 4,000 votes were tallied to identify the #1 winning brands across 35 categories such as consumer packaged goods, insurance companies and Canadian retailers.

We are pleased to showcase a selection of 2023 Trusted Brand™ winners!

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- BEHR – Interior Paint
- TOYOTA – Hybrid Car Manufacturer
- TYLENOL – Arthritis Pain Reliever
- TOYOTA – Passenger Car Manufacturer
- TYLENOL – Headache Pain Reliever

GOLD 5–9 YEARS

- Aveeno – Sensitive/Dry Skin Lotion
- PURINA Your Pet, Our Passion. – Pet Food
- BEHR – Exterior Stain
- Tetley – Tea
- BEHR – Exterior Paint
- TYLENOL – Cold Symptom Reliever

CLASSIC 1–4 YEARS

- always – Pads/Liners
- SMIRNOFF – Cooler
- Casper – Mattress-in-a-box
- Tide – Laundry Detergent
- CAA – Travel Insurance Company
- TYLENOL – Pediatric Fever & Pain Reliever

For a list of all 2023 winners, visit trustedbrands.rd.ca

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World of
GOOD
REASONS TO SMILE

Have Chair, Will Travel

For 33-year-old American travel blogger Cory Lee, it used to be easier to explore Antarctica than some of the nearby parks and beaches in his home state of Georgia. Using a wheelchair once meant that rugged hiking trails were off-limits, but that's no longer the case. All-terrain power wheelchairs are now available at state parks in Georgia, as well as in Colorado and Michigan. The wheels and treads on each Action Trackchair allow people with mobility issues to traverse rocky trails, sandy beaches and uneven terrain. They're even powerful enough to make steep uphill climbs. As Lee told CNN, "It'll open up a whole new world for me and for other wheelchair users."



COURTESY OF CURB FREE WITH CORY LEE



Nasrat Khalid wanted to show that disaster aid can be done differently.

Made in Afghanistan

Nasrat Khalid turned his artisan website into a grassroots disaster-relief organization

BY *Diane Peters*

ON A JULY day in 2021, Nasrat Khalid was on the phone to his native Afghanistan when he got some awful news: "This whole city has turned into a refugee camp," Kabul-based Mohammed Nasir told him.

Nasir is the chief of operations for Khalid's company, Aseel, which positions itself as the Etsy of Afghanistan. It allows artisans making things like blankets and jewellery to sell their products around the world via its app and website. Artisans may also receive training in handicrafts and business practices.

Khalid, who is based in Washington, D.C., worried constantly about Kabul that summer as U.S. forces withdrew

MOSTAFA BASSIM

from Afghanistan and city after city fell to the Taliban. His Afghan-based team struggled to ship products to buyers, while local artisans saw their incomes dry up. Plus, many of them were fleeing the increasingly dangerous provinces.

Khalid knew he had to help his people. He used some of the company's savings to buy food, and Nasir delivered it to a refugee camp in Kabul. Hungry people attacked the truck, tearing Nasir's clothes in their desperation.

It was clear that they needed to take a more systematic approach. Every aid recipient got an identification number, and Aseel's tech infrastructure tracked every drop-off. "We created a whole new distribution system," says Khalid.

An emergency-response page was added to the company's website, allowing donors to give money or buy emergency packages of food or supplies. They can even select a specific recipient, so that expat Afghans can send money and aid to family members.

Later, Khalid created a GoFundMe-style page on Aseel's website that allows people to run fundraising campaigns for, say, giving food to people in a particular province or funding a vocational program for girls. As of early 2023, Aseel had raised more than US$750,000 from donors and helped some half a million people, in part through a partnership with the U.S.-based Women for Afghan Women.

Recipients include Fatima, a single mother in Kabul who lives with 12 people in a one-room house. "Aseel's food packages helped me survive the worst days of my life," she told *Reader's Digest* through a translator.

Before she and her sister received Aseel's packages, they had been going without enough food in order to provide for their kids and send them to school. "I remember the first day I received a food package. My kids played music and danced for the whole day." Fatima joined an Aseel apprenticeship program; after she completes it, she will be able to find employment with a local handicraft company.

In November 2022, the Society for International Development gave Khalid a leadership and innovation award. Jason Criss Howk, director of the U.S. advocacy group Global Friends of Afghanistan, lauds what Khalid has done with both the charitable functions of Aseel and its for-profit arm.

"Aseel has become a vital tool to get directed aid to certain places in the country," he says. "They buy and distribute locally, which is sparking the economy." He thinks Khalid could help people in other nations, too, while keeping overhead low—something large aid organizations struggle to do.

Next, Khalid would like to work more in Turkey's Afghan refugee camps, and he has plans for further expansion and collaborations with aid groups.

"When Afghanistan collapsed, initially I felt very powerless," says Khalid. "When my country went through this disaster, Aseel became a lifeline to people in need." R



Children in Campo Grande, Brazil, participate in a school program to reduce disease.

FIGHTING MOSQUITO-BORNE DISEASES

HEALTH With its densely populated communities, Brazil struggles with outbreaks of mosquito-borne diseases like Zika virus, chikungunya and dengue fever. The World Mosquito Program (WMP) hopes to change that by using the *Wolbachia* method—and it's enlisting school kids to help.

Wolbachia is a type of harmless bacteria found in up to half of insect species and research has shown it helps reduce disease transmission. The project raises mosquitoes with Wolbachia and then releases them into communities, where they mate and produce offspring carrying the bacteria.

In 2022, the WMP's Brazil chapter teamed up with 17 public schools in the central-western city of Campo Grande. About 1,600 students were provided with kits to raise an estimated 2.5 million Wolbachia mosquitoes over 16 weeks. The children also learned about proper mosquito safety.

"It isn't the whole solution," says Luciano Andrade Moreira, who leads WMP operations in Brazil. "Along with vaccines and insecticides, Wolbachia mosquitoes are one more tool."

The program is showing results elsewhere in the world. For example, a study in Yogyakarta, Indonesia, found a 77 percent reduction in dengue cases in Wolbachia-treated regions.

COURTESY OF THE WORLD MOSQUITO PROGRAM

Community Rallies to Rescue Dolphin Pod

WILDLIFE Linda Groocock was out running errands in Digby, Nova Scotia, last November when she spotted an unusual sight off the coast: 16 Atlantic white-sided dolphins had become beached. Figuring they didn't have a lot of time—dolphins can survive out of water for only about six hours—Groocock quickly got in touch with the Halifax-based Marine Animal Response Society (MARS), as well as some friends who individually contacted the local fisheries department and posted about the dolphins on a community Facebook page.

MARS personnel were too far away to get to the dolphins in time, so they enlisted Digby's volunteer fire department to help coordinate the response. Soon, about 40 locals who had seen the news online arrived on the scene and waded into the mud flats. Then they carefully moved the dolphins to tarps or sleds and gently hauled them back to the water. It wasn't long before each dolphin was safely back in the sea, swimming with its podmates.



ROSS EDMOND/GETTY IMAGES

Bracelet Keeps People With Dementia Safe

INNOVATION Project Lifesaver, founded in the U.S. state of Virginia in 1999, is a non-profit organization that helps find wandering individuals, such as those with dementia or other cognitive conditions. Participants wear frequency-emitting wristbands—a technology often more reliable than GPS.

Earlier this year, the program made its 4,000th rescue, quickly finding a seven-year-old boy with autism who had wandered away from his Indiana home during the winter.

Today, there are more than 1,700 Project Lifesaver–certified agencies in the U.S. and Canada that can locate wanderers in an average of 30 minutes.

Bringing a Nation's Trees Back to Life

ENVIRONMENT Although Iraq was once the world's leading producer of dates, years of war and drought resulted in the destruction of half of the country's roughly 30 million date-palm trees.

Labeeb Kashif Al-Gitta, co-founder of agri-tech company Nakhla, is working to revive the iconic tree. For an annual subscription, Nakhla tends to residents' mature trees, so they can hopefully bear fruit once again.

Nakhla launched in 2018, and as of 2022 the company cared for more than 14,000 date palms, with hopes to reach 50,000 by the end of 2023.

FINISH THIS SENTENCE

The best invention ever is ...



The little skewers for holding corn on the cob.
HELEN
United Kingdom

The telephone—it's the ancestor of all modern communications.
KEVIN
Canada

Writing.
CATHERINE THIERRY
France

I don't know, but the worst is the television.
OFÉLIA ALMADA
Portugal

Penicillin.
DOMENICA MONTERO-ALDAMA
United States

Grilled-meat tacos!
ARTURO FLORES
Mexico

The existence of God.
SANTIAGO IGOR ARANGUIZ CAVIERES
Chile

The washing machine, now that I am a mother.
ELENA FERNÁNDEZ
Spain

(MAP) SHUTTERSTOCK


Yet to be invented.
JUHA SORMUNEN
Finland
Electricity.
NEL GOZELING
Netherlands
Medicines and medical equipment that save lives.
MICHELLE GARCIA
Philippines
Freedom.
TIM
Germany
The printing press.
DIANA MAES
Belgium
Air conditioning.
KATRINA DUNGEY
New Zealand
The wheel.
MUKHTAR HAIDER
Pakistan
The flush toilet.
JANINE MOCKRAM
Australia
Coffee. I'd be paralyzed without a cup in the morning.
RIMA SEN
India

LIFE'S LIKE THAT



"Do you have any true-crime podcasts?"

Movie Marathon
A 90-minute film takes us 2.5 hours to watch. My wife and I pause it to discuss other movies each actor was in.
—@SOCIAL_MIME

Birthday Blunder
When I ordered a birthday cake for a co-worker, I gave the bakery a funny verse I had composed, as well as instructions to "add 'Happy Birthday Ruth' at the end." When we unveiled the cake, we saw the verse was done perfectly and, true to my instructions, the message closed with the words "Happy Birthday Ruth at the end."
—SHARON MCGREGOR, *Brandon, Man.*

Puppy Love
"You're the only man I can depend on" is something I just told my dog.
—NICOLE BYER, *comedian*

Send us your funny stories! You could earn $50 and be featured in the magazine. **See page 2 or rd.ca/joke for details.**

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HEALTH *Digest*
WELLNESS FOR BODY & MIND

Drink Up!

Hydrating beverages that aren't water

BY *Anna-Kaisa Walker*

WATER KEEPS OUR most basic functions running—from blood circulation to temperature regulation through sweating to digestion and more.

Our bodies are about 60 percent water and if we don't get enough to drink, dehydration—defined as a body-water loss of at least one to two percent of your weight—can cause dizziness, fatigue and headaches. Both our body-water content and our thirst perception diminish as we age, putting seniors at greater risk of dehydration.

An easy way to gauge your hydration levels is by the colour of your urine and how often you pee (ideally more than

ILLUSTRATIONS BY *Kate Traynor*

four times per day). "It doesn't need to be clear all the time, but it should be light like lemonade, not dark like apple juice," says Isabel Maples, a registered dietitian based in Washington, D.C., and a spokesperson for the Academy of Nutrition and Dietetics. "Keep in mind that some medications and supplements can also affect urine colour."

So how much water do we need to drink? You may have heard of the decades-old eight-glasses-a-day guideline, but experts say that's not supported by current research. "In reality, fluid needs vary from day to day and from person to person," says Maples.

The average adult male requires about three litres of fluids a day, while the average female should consume just over two litres. Other factors, such as temperature, altitude, intense exercise and certain medications, can increase those needs.

Of course, water isn't the only option. An estimated 20 percent of our fluid intake comes from foods, and the rest can be a combination of water and other hydrating beverages. Here are several:

COFFEE Go ahead and order a large coffee. Caffeinated drinks do have mild diuretic properties, but there's no evidence that they lead to dehydration. "Coffee and tea may increase urination in the short term, but the fluid intake offsets that loss," says Toronto-based registered dietitian Drew Hemler.

A 2014 U.K. study published in the journal *PLOS One* measured the body water of subjects in two groups: one that drank 800 millilitres of coffee a day and the other an equal amount of water. After controlling for food intake and exercise, researchers found no significant difference in hydration levels.

"There is no reason why caffeinated beverages can't count toward your daily fluid totals, as long as you're used to the caffeine," says Maples. Five or more 250-millilitre cups of coffee a day is excessive, she says, but three to four cups is within healthy limits.

TEA Both black and green tea have about the same hydration benefits as coffee, with the added boost of heart-protecting antioxidants. Soothing brews like chamomile or mint are caffeine- and calorie-free, and their taste may encourage you to drink more. "Hibiscus tea, in particular, is packed with antioxidants and flavonoids," says Hemler, due to the anti-inflammatory pigment molecules that give hibiscus its bright red colour.

MILK In a 2015 study published in the *American Journal of Clinical Nutrition,* British researchers found that cow's milk, both full-fat and skim, is more hydrating than plain water. That's because it takes longer to digest than water, allowing the body to absorb more fluids. In the study, subjects who drank milk produced less urine over four hours than those who drank an equal amount of other fluids, and showed higher hydration levels in their blood. Milk also supplies three nutrients that most of us need more of: potassium, vitamin D and calcium.



PLANT MILKS The nutritional profiles of non-dairy milk options (soy, almond, oat and coconut are top sellers) vary. But most are low-calorie, low-cholesterol and more environmentally sustainable alternatives to dairy. “Some plant milks are fortified with calcium and vitamins A, D and B12, as well as other nutrients commonly added to cow’s milk,” says Hemler. “However, they fall short on protein.” Only soy milk comes close, at six grams per cup, compared to eight grams for cow’s milk.

Plant milks are higher in water compared with dairy—almond milk is 97 percent water, and cow’s milk is 87 to 90 percent—but because they lack dairy’s protein and carbohydrates, they pass through the digestive system faster, putting them roughly on par with water for hydration.

SPORTS DRINKS Available in a range of colours and fruity flavours, sports drinks are advertised as being more hydrating than water. But that’s only accurate because people tend to drink more of something that tastes good, says Hemler. “If you’re trying to lose weight, be aware that these drinks can also increase your total carbohydrates and calories,” he says.

A 600-millilitre bottle contains up to 35 grams, or eight teaspoons, of sugar, but there are low- or no-sugar options.

Sports drinks do supply electrolytes—minerals that support hydration and muscle function—and can be helpful in recovery from intense exercise lasting

more than an hour. An electrolyte-enriched drink can also help rehydrate you after an episode of severe diarrhea or vomiting.

JUICE Fruit and vegetable juices with no added sugar are an excellent source of vitamins, minerals and antioxidants, which can reduce inflammation and help prevent age-related diseases. Natural sugars, like fructose and lactose, are digested more slowly than processed sugar, helping stabilize your metabolism. Orange juice has slightly better hydration than water, according to a 2015 British study that measured subjects' urine output after consuming different drinks.

COCONUT WATER CONTAINS HYDRATION-AIDING ELECTROLYTES AND MORE POTASSIUM THAN A BANANA.

COCONUT WATER Technically a fruit juice, this clear, slightly sweet liquid contains hydration-aiding electrolytes, namely sodium, magnesium and potassium. In fact, 250 millilitres contains more potassium than a banana. It's marketed as a natural exercise-recovery drink, but a 2012 study published in the *Journal of the International Society of Sports Nutrition* found no significant hydration difference between coconut water, sports drinks and water. If you like something sweeter than water but are watching your calories and carbs, coconut water is a healthier option than some sports drinks, at 45 to 60 calories and six grams of sugar per 250 millilitres.

ALOE VERA The gel of the aloe plant is well known as a skin salve for its moisturizing and burn-soothing properties, but it can also be mixed with water to make a refreshing, hydrating drink. Aloe is rich in polyphenols, a type of antioxidant, and research from a 2016 study published in the journal *Nutrients* suggests it may even help control blood sugar.

You could make your own, but it's best to buy bottled aloe juice; the sticky latex inside the aloe leaf can cause stomach upset if not carefully removed.

BONE BROTH Made by simmering chicken or beef bones and cartilage with vegetables for a minimum of 12 hours, bone broth has become trendy as a comforting drink with anti-inflammatory properties, thanks to the amino acids derived from collagen.

With its added salt, it can also replenish electrolytes; sodium helps the body retain fluids. Too much sodium, however, can put extra pressure on your blood vessels, making your heart work harder.

"Your recommended limit for sodium intake is 2,300 milligrams a day, and 500 millilitres of bone broth can contain a quarter of that," says Hemler. If you buy bone broth, low-sodium versions are best, or you can make your own and reduce or skip the salt.

Easy on the Eyes?

BY *Diane Peters*



BLUE-LIGHT-BLOCKING GLASSES are supposed to combat the effects of short-wavelength light emitting from our smartphones, computer screens and LED lights: namely, eye strain leading to poor sleep and possibly cataracts and macular degeneration. They can range from under $15 all the way up to several hundred dollars. But do they really work?

Dr. Elizabeth Esparaz, an ophthalmologist and lifestyle medicine specialist based in Cleveland, Ohio, says the science that manufacturers share to promote these glasses can be confusing. For starters, blue light isn't just about tech devices, and it's not always bad.

"The sun emits a much higher intensity of blue light than human-made devices, of course, and it's actually beneficial," says Dr. Esparaz. It helps our mood, alertness and sleep-wake cycle.

However, blue light at *night* is not a good thing: It suppresses the release of melatonin. "Melatonin helps regulate our circadian rhythms and makes us sleepy," says Dr. Esparaz.

So, in theory, blue-light-blocking glasses should help people who watch movies in bed or read from a tablet at night to avoid sleeplessness. Indeed, a 2021 review from the University of Oklahoma that looked at 24 previous studies found people affected by sleep disorders, jet lag and shift work fell asleep faster after using these glasses.

As for eye strain, an Australian study of 120 people in 2021 showed that those wearing the glasses did not experience less eye strain than those using clear glasses. And a 2018 review study, also by Australian researchers, concluded that there was insufficient evidence to show that they prevent macular degeneration.

"These glasses aren't going to be harmful," says Dr. Esparaz, so people who find them effective should keep using them. But, she adds, a lack of standardization in the industry means there's no way to know if one pair is better than another.

You can always activate the blue-light-filtering function on your devices and limit screen time before bed. To help combat eye strain, Dr. Esparaz suggests taking breaks and using lubricating eye drops.

News FROM THE

WORLD OF MEDICINE

BY *Samantha Rideout*



REVERSING SLEEP APNEA

Roughly one billion of the world's adults live with obstructive sleep apnea. This common disorder contributes to problems ranging from daytime fatigue and irritability to heart disease.

The go-to treatment, a continuous positive airway pressure (CPAP) machine, controls sleep apnea by delivering pressurized air through a mask while the person sleeps. However, the machine doesn't address the underlying causes, which are often lifestyle related.

To demonstrate this, researchers in Spain helped half of the recruited patients to eat and sleep better, exercise more, and smoke and drink less. Six months later, this group's sleep apnea improved more, on average, compared to the control group. In fact, just over 60 percent of patients no longer needed a CPAP machine.

Breast-Cancer Surgery Not Always a Must

Patients with breast cancer who respond well to chemotherapy may now be able to skip surgery altogether: Improvements made to the drugs have rendered them so effective that they can sometimes eradicate the cancer.

For instance, in a Texas-based trial, 31 out of 50 women with early-stage HER2-positive or triple-negative tumours had no signs of cancer after chemotherapy. So instead of an operating room, these patients proceeded to radiotherapy—and after two years, none of them saw their cancer return.

Larger trials will be needed, but this small one suggests that skipping surgery is feasible more often than previously thought.

You Might Be Allergic to Your Phone

There's more on the typical smartphone than just data, according to a recent analysis in *Annals of Allergy,*

PHOTOGRAPH BY THE VOORHES



Asthma and Immunology. When investigators in Massachusetts and Iowa analyzed what was on the phones of 15 volunteers, they uncovered some eye-watering evidence. In addition to dog and cat dander, they found β-D glucans, which are a marker of mould, and endotoxins, which are powerful inflammatory agents.

To prevent your phone from triggering reactions such as wheezing or sneezing, clean it frequently, especially if you know you have allergies or asthma. (Just make sure you stick to the manufacturer's cleaning instructions to avoid damaging the device.)

A Blood Test for Alzheimer's

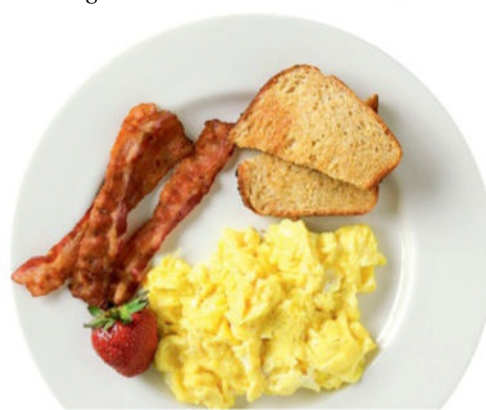
When someone has cognitive issues, a doctor can order a PET scan or spinal tap to look for a buildup of a protein called beta-amyloid in the brain—one of the signs of Alzheimer's disease.

However, a recent international study published in *Neurology* confirms that a newer method, measuring the amount of beta-amyloid in the blood, is only slightly less accurate. It's also faster, less expensive and radiation-free. A version of this test is now available in the U.S. and Europe. It isn't yet covered by most health plans, but that might change, considering its usefulness.

Consume More Protein to Stave Off Hunger

If you're feeling hungry even though you just ate, a lack of protein might be the culprit. This source of energy should make up 15 to 25 percent of the calories we take in, but popular processed foods and convenience fare don't tend to contain much.

In a recent study from the University of Sydney in Australia, participants who got less than the recommended proportion of their energy from protein in their morning meal went on to eat more food throughout the day. Researchers concluded that, starved of something they needed, they may have felt hungry despite their high calorie intake. R



(TISSUE BOX) MAGNETCREATIVE/GETTY IMAGES; (PHONE) FOTOGRAZIA/GETTY IMAGES; (WOMAN) TEERAMET THANOMKIAT/EYEEM/GETTY IMAGES; (FOOD) THINKSTOCK/GETTY IMAGES

LAUGHTER
THE BEST *Medicine*

Believe It or Not
Why is it that when someone tells you there are more than a billion stars in the universe, you believe them, but if they tell you there is wet paint somewhere, you have to touch it to make sure?
—PETER KAY, *comedian*

Buyer's Remorse
I finally bought the limited-edition thesaurus that I've always wanted. When I opened it, all the pages were blank. I have no words to describe how angry I am.
—REDDIT.COM

With Honours
The guy with the worst grades should get to give a graduation speech too. Let me hear both sides.
—@SAMUELSAULSBURY

Stress Check
How do I teach my body that my fight-or-flight response is supposed to be for life-or-death situations, not answering an email?
—@_CHISMOSA_

Send us your original jokes! You could earn $50 and be featured in the magazine. **See page 2 or rd.ca/joke for details.**

THE BEST JOKE I EVER TOLD

By Amy Yu

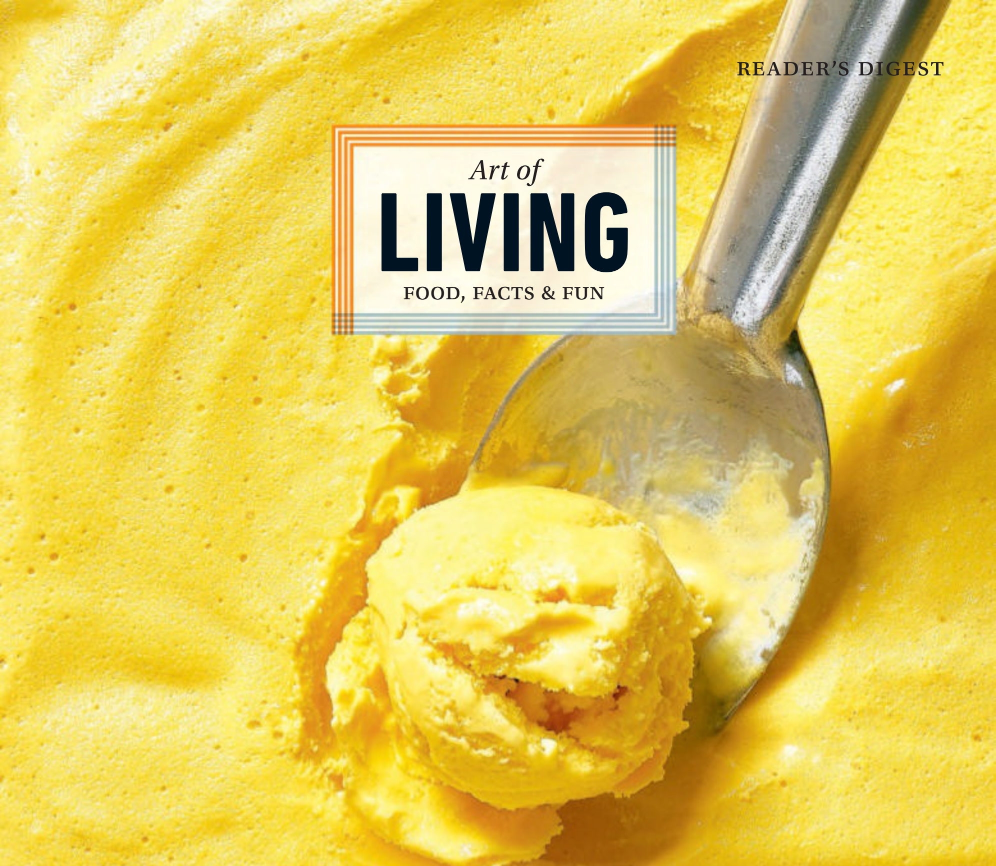
I'm an accountant with ADHD and I don't think they are compatible. Research shows that people with ADHD are highly creative. Guess what happens when accountants get creative? They go to jail.

Amy Yu is a comedian who performs in English and Mandarin. She's also the producer of Asian Wonder Women, *an international online comedy show.*



KRISSIA VALIENTE

Art of
LIVING
FOOD, FACTS & FUN



The Scoop on Gelato

This Italian export has won fans all over the world

BY *Renée S. Suen*

WE ALL LOVE ice cream, but gelato, sculpted into colourful waves or mountains behind glass counters the world over, is denser and its flavours more pronounced. Even better: Because it's made with more milk and less cream, gelato is also lower in calories. In fact, apart from its fantastic taste, gelato is perhaps best characterized by the quality of its natural ingredients.

We think of frozen treats as modern marvels, but even people in ancient times enjoyed flavoured desserts made with naturally occurring ice. Egyptian pharaohs

TMB STUDIO

PHOTOGRAPHS BY *K. Synold*

served their guests ice sweetened with fruit juice. Romans crushed ice from Mount Vesuvius and enjoyed it with honey. Many believe that the origin of gelato is a Chinese recipe Marco Polo brought back to Italy around the end of the 13th century. It called for milk and spices to be mixed with overcooked rice and snow.

GELATO GAINED MASS POPULARITY WHEN A PARIS CAFE STARTED SERVING IT IN THE LATE 1600s.

Gelato's Italian breakthrough came more than 200 years later, when astrologist Cosimo Ruggieri won a culinary contest sponsored by the influential Medici family with his *fior di latte gelato,* which omitted the rice. A smitten Catherine de Medici later had Ruggeri make it for her wedding to the future king of France.

However, Bernardo Buontalenti is considered to be the "father of gelato." (An American gelato brand, Talenti, is named after him.) In 1565, the famous Florentine artist and architect created a new dessert based on zabaglione, a type of whipped custard. He used milk, egg yolks and honey flavoured with sweet wine, bergamot, lemon and orange for the court of Catherine de Medici.

Despite being a hit among royalty, gelato didn't gain mass popularity in Europe until Le Procope, a Paris café owned by Francesco Procopio dei Coltelli, started serving it in 1686. (Procopio, a Sicilian, also created the first ice-cream making machine, which allowed for the large-scale production of the frozen dessert.)

The treat then came to America with Italian native Giovanni Basiolo, who arrived in New York City in 1770. Gelato didn't become a sensation there, though, until the 1900s.

But it's not just a dessert. Gelato can be enjoyed atop breakfast pastry (*brioche con gelato*) or drowned in a shot of espresso (*affogato*). You can even find savoury varieties such as red wine, olive oil or tomato with basil. Spun through the mind of a culinary wizard, it can be otherworldly: At Toronto's Michelin-starred Don Alfonso 1890, an eel-infused version served on wild-rose tagliatelle with herbs and caviar is on offer.

Those who love it so much they want to become a true aficionado can attend Gelato University in Bologna, Italy, and learn how to create their own variations. GU also has a course for those with aspirations to be gelato shop owners; the school trains students on the details of how to make true gelato, and how to open and run a shop anywhere.

Most of us will be satisfied just enjoying the tasty stuff on a warm day. Dressed up with fruit, nuts or sprinkles, or served straight, gelato is truly one of the hottest commodities on the frozen-treat market.

ILLUSTRATION BY *Ed Fotheringham*



AS KIDS SEE IT



"Much better! I swapped our bowls so they match the shape of our faces."

My three-year-old as she pulls out a chess board from a storage box: "I haven't played this in years!"
— REDDIT.COM

My son is arguing with my husband about a math problem. My husband is an engineer. My son is in Grade 4. His confidence is strong.
— @BUNANDLEGGINGS

I overheard my 11-year-old daughter record her voice mail greeting: "Hi, you've reached my voicemail. When you hear the beep, hang up and send me a text." This generation gets it.
— @DAD_AT_LAW

A woman in the bathroom stall next to me was struggling to convince her toddler to use the facilities. "You need

CARTOON BY *Rose Anne Prevec*

One day my nine-year-old son came home from school and joyfully told me, "My friend said that if we press the airplane mode button on a cellphone, it might be able to fly away like an airplane!"

— JANIS CHEN-YI KO, *New Westminster, B.C.*

to go," I heard her plead. "It's been two days!" The toddler responded, "But my poop wants to stay home."

— RITA HICKEY, *Brampton, Ont.*

We went to a nice hotel for lunch the other day. Afterward, we stopped at the valet booth to ask them to retrieve our car. My toddler asked the attendant inside, "Is this your house?"

— REDDIT.COM

My four-year-old daughter was sitting in an adjacent room and sneezed. After a brief pause, a little voice came from the room: "Isn't anyone going to 'bless you' me?"

— STACEY THOMPSON, *Oshawa, Ont.*

When we're in the car, my daughter and I have a game where she plays a song and I guess the artist and title within seconds of listening. She's unaware the song information is on the dashboard.

— @DJLEVELA

My granddaughter was looking at old photos of her father, taken before our family immigrated to Canada. "Thank you for bringing my dad," she told me. "Otherwise, me and my sister would be here alone with our mom!"

— MIRJANA KOVACEVIC, *Toronto*

My son just turned three, so I took him for his yearly checkup. The doctor asked him what his favourite fruit was, and he said cheese.

— @DADOF2CRAZYBOYS

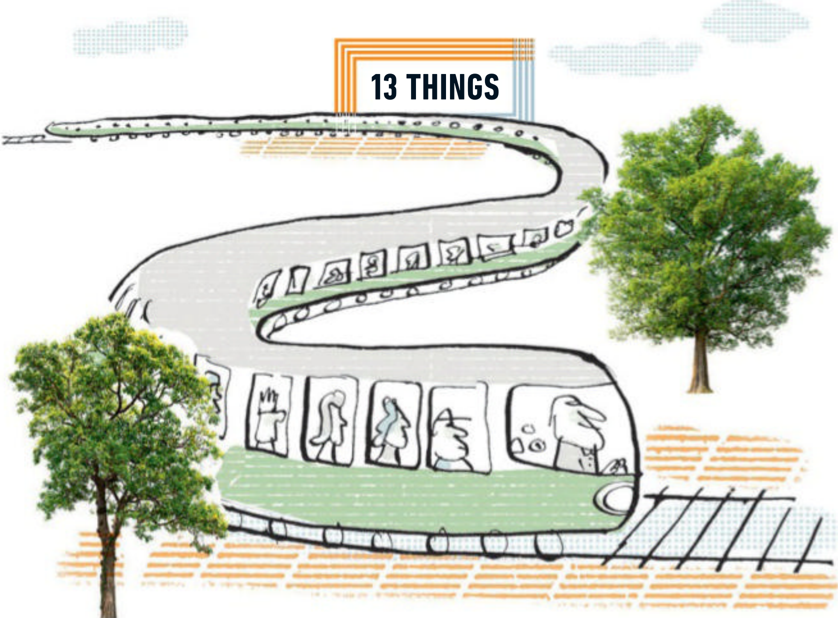
I was making my toddler a peanut butter and jam sandwich. She examined the containers and I asked her which one would be more dangerous if it fell on the tile floor. She said, "The glass one because then we'd have no more jam!"

— ASHLEY ASHFIELD, *Hampton, N.B.*

When we passed a wind turbine farm, my son asked me if they make the fans go faster when it gets hot.

— RICHARD MERRICK, *Orangeville, Ont.*

Send us your funny stories! You could earn $50 and be featured in the magazine. See page 2 or rd.ca/joke for details.



Fast and Reliable Facts About Trains

BY *Samantha Rideout*

1 AS SUMMER rolls in, railways are on track for peak passenger season. Asian trains carry the most passengers; in Japan alone there were around 6.6 billion trips in 2021! By comparison, the United States has an annual passenger load of 22.9 million trips, despite having the largest rail network: nearly 225,000 kilometres of track. To be fair, those rails also carry 1.54 billion metric tonnes of freight each year.

2 TRAVELLING BY high-speed rail can be quicker than taking a plane—if you account for time spent waiting around at the airport. Train stations are also centrally located, while airports are often outside the city centre. Train travel tends to be greener, too. A train ride between London and Madrid emits 43 kilograms of carbon dioxide per passenger, compared to 118 kilograms for the same trip by plane.

ILLUSTRATION BY *Serge Bloch*

3 THE FIRST rail systems arrived long before the first locomotive. As early as the 16th century, Europeans built railways in mines to help transport metal ores. By reducing friction, these rails made it easier and faster to move wagons, but it was men or horses—not engines—that provided the power.

4 THE FIRST steam-engine train was used to transport iron in Wales's Merthyr Tydfil mining region in 1804. (Perhaps it's these British origins that inspired so many train enthusiasts in the U.K., where there are currently at least 20 magazines published on the subject.)

5 THE FASTEST trains today typically travel around 320 kilometres per hour. Also known as "bullet trains," after Japan's famous Shinkansen lines, most of them run on electricity. But the fastest one of them all, the Shanghai Maglev, uses the attraction and repulsion forces of magnets to float slightly above a guideway and shoot forward, racing as fast as 460 kilometres per hour.

6 SOME TRAINS are truly luxurious. Take the Venice Simplon-Orient-Express: The grand-suite sleeping cars have plush double beds, private marble bathrooms and free-flowing Champagne. The bar car features a live pianist and the dining cars are restored 1920s art-deco carriages. The catch? The five-night Paris-to-Istanbul journey starts at £19,000.

The Orient Express is, of course, the setting for one of Agatha Christie's best-known detective novels. *Murder on the Orient Express* is a "closed-circle mystery": There was no way for anyone to leave the stranded train, so the murderer had to be one of the people on it.

7 IF YOU prefer rocky lakeshores and vast boreal forests to big cities, the Trans-Siberian Railway might be more your style. Even express trains take nearly a week to do the full route, which winds 9,259 kilometres between Moscow and Vladivostok in Russia, passing through eight time zones along the way. Once a week, a single railcar from North Korea connects to a longer train in Vladivostok, making the Pyongyang-to-Moscow route the world's longest rail trip a passenger could take without having to switch trains.

8 TO FIND videos of real train trips, search "slow TV." It's a term for relaxing footage that plays out over the same amount of time as the event it portrays. You could stream the view from one of Chicago's elevated trains or 10 hours of fjords and valleys on Norway's spectacular Nordland line.

And why not try a classic train-related board game like Monopoly or the newer Ticket to Ride? The latter is played on various map-like boards—

from Germany to San Francisco to India—that help players brush up on their geography.

9 RAILWAY HOLDUPS are a staple of old Western movies. *The Great Train Robbery*, released in 1903, is an early example. It echoed an event from four years earlier: Butch Cassidy and his crew of bandits had struck a Union Pacific train, using dynamite to blow open its safe before escaping on horseback.

10 MYSTERIOUS LIGHTS, unexplained rumbles: Could it be a ghost train? One of the world's many purported phantom locomotives follows the same route as the train that carried the body of assassinated American president Abraham Lincoln from Washington, D.C., back to his home in Springfield, Illinois, in 1865. According to an 1879 newspaper, "The shriek of its whistle and clang of its bell strike terror to the hearts of those that hear them."

The term "ghost train" also describes British trains that run infrequently at odd hours and often without any passengers. The reason? It's easier to run these trains at a bare minimum than to spend the time and money needed to officially close down the lines.

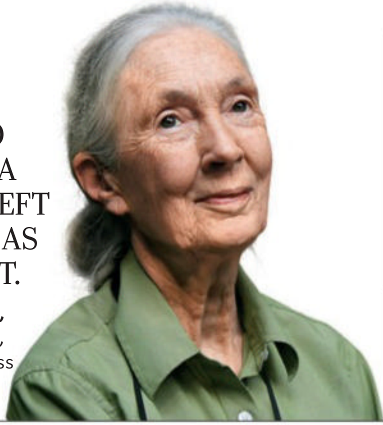
11 MANY OF the nations involved in the First World War relied heavily on railways. France, for example, used them to transport around one million men and 400,000 horses to the front during the first two weeks alone. Great Britain used trains as ambulances. They even had operating rooms where surgeons performed emergency procedures while in transit—despite the bumping and swaying!

12 THAT'S NOT the only unusual use of a train. Between the 1920s and '60s, Canada used trains as mobile schoolhouses that travelled between remote communities in northern Ontario. Children would walk, snowshoe, ski or canoe to the train stop, then settle in for five days of intensive studying. They'd get homework to do during the six weeks that would pass before the train's return. Other trains had fully equipped dentist cars so northerners could get their cavities filled.

13 THESE DAYS, commuter trains and metro trains are part of everyday life for countless urbanites—including the 10.35 million people who use the world's busiest subway system in Beijing on the average day.

Meanwhile, in the United States and elsewhere, private companies are dabbling with the "hyperloop": a train that travels through a tube where there's no air resistance to slow it down. The concept works on paper, but it has proven to be difficult to make comfortable and cost effective.

QUOTABLE QUOTES



I WENT TO AFRICA AS A SCIENTIST. I LEFT THE JUNGLE AS AN ACTIVIST.

—**Jane Goodall,** PRIMATOLOGIST, IN HER MASTERCLASS

JUST GIVE YOURSELF CREDIT FOR EVEN THE SMALLEST STEPS.

—**Tig Notaro,** COMEDIAN, IN *THE ATLANTIC*

Swing hard in case you hit it.

—**Bernie Williams,** FORMER PROFESSIONAL BASEBALL PLAYER, IN THE HEALTHY

You're never too young to start an empire and never too old to chase a new dream.

—**Manjit Minhas,** ENTREPRENEUR, IN *CANADIAN BUSINESS*



CREATIVITY LIES IN THE EVERYDAY. THE GREAT IDEAS COME WHEN YOU ARE WASHING THE DISHES.

—**Jim Parsons,** ACTOR, ON THE PODCAST *THE GREAT CREATORS WITH GUY RAZ*



(GOODALL) JANE GOODALL INSTITUTE/SHAWN SWEENEY; (PARSONS) KIMBERLY WHITE/STRINGER/GETTY IMAGES; (MINHAS) COURTESY OF MANJIT MINHAS





PROTECT YOURSELF FROM SCAMS!

Want to foil fraud artists? Follow this primer.

BY *Marc Saltzman*

PHOTOGRAPHS BY *C.J. Burton*

I'M AN AVID MOVIE STREAMER,

and it's not unusual for me to receive emails from Netflix about things to watch. So a new message about updating my account information didn't seem out of place—especially as it featured the familiar red Netflix logo. Here's what the email looked like:

We were unable to validate your billing information for the next billing cycle of your subscription. therefore we'll suspend your membership if we do not receive a response from you within 48hours.

Obviously we'd love to have you back, simply click restart your membership to update your details and continue to enjoy all the best TV shows & movies without interruption.

We're here to help if you need it. Visit the Help Center for more info.

–The Netflix Team

But on closer inspection, the tone seemed a bit off (why so urgent?) and I noticed a typo ("48hours"). I promptly deleted the message without clicking the links, then blocked the sender.

This common "phishing" scam is engineered to trick the recipient into providing their credit- or debit-card number, bank details or Netflix password. Through email (often with questionable grammar), texts, social media requests or phone calls, cybercriminals are doing everything in their power to deceive and defraud you. Around the world people are falling victim to data breaches, viruses and ransomware (when you're locked out of your computer unless you pay to regain access).

Cybercriminals are often linked to attacks from China and Russia (often state sponsored), India (where many call centres are located) and parts of Africa (Nigerian prince, anyone?). That's because it can be difficult to find and charge perpetrators in those places. But the attacks can come from anywhere.

Cybersecurity experts at Symantec say the United States experiences the most cybercrime. In 2021, it cost Americans older than 50 nearly US$3 billion, a 62 percent increase from the prior year, according to the FBI's Internet Crime Complaint Center. In fact, the number of victims could be much higher, in part because many are seniors who may not know how to report it, or even that they have been scammed at all.

In Canada, about C$379 million was lost to scams and fraud in 2021 for all age groups, an increase of 130 percent compared to the year prior, according to the Canadian Anti-Fraud Centre. The U.K. has been hit hard, too, with more than £1.3 billion gained by cyber-scammers

in 2021, says UK Finance, which represents the banking and finance industry there. About 40 percent of it was obtained by fraudsters convincing people to pay into a bank account.

The problem is getting worse. According to *Cybersecurity Ventures*, a New York-based publication, global cybercrime is expected to balloon to US$10.5 trillion annually by 2025, up from $3 trillion in 2015. If it were measured as a country, cybercrime would be the world's third-largest economy, after the United States and China and ahead of Japan, Germany, the U.K., India, France, Italy and Canada.

AN EMAIL FROM A SCAMMER COULD HAVE A LOGO JUST LIKE THAT OF YOUR BANK OR CREDIT CARD COMPANY.

Reasons are varied, but many cybersecurity experts cite the pandemic as a catalyst, when much of the world was forced to work from home, often without the same security protocols as they have at the office. This made it more likely that computer viruses would be let in, says Vishnu Varadaraj, a senior director at software-security company McAfee Canada.

"The shift to us relying more on online services made it a lot easier for cybercriminals to attack," adds Varadaraj. The number of ways they could take advantage of us increased, he says, especially as we're using more devices to access online accounts for things like banking, shopping and social media apps.

THE MOST COMMON THREATS

Here are some of the widespread cybercrimes happening right now.

PHISHING AND SMISHING

No respectable company or government department will email to ask you to confirm your identity by filling out forms. These authentic-looking emails are often referred to as "phishing"—luring you to a phony website to input information. (When these come via text message, experts refer to it as "smishing," for "SMS phishing.")

An email could have a logo like that of your bank or credit-card company. The message says that someone is trying to access your account, and that you need to log in immediately and change your password. But, unknown to you, the link you click takes you to a fake website, and your current password and private financial information go to the fraudsters. Money can now be withdrawn from your account or applied to your credit card. You may then be locked out because the criminals may have changed your password.

In 2022, a Victoria, B.C., resident (who prefers to remain nameless) was cheated out of tens of thousands of dollars by a

fraudster who sent an email appearing to be from PayPal. The victim was duped into sharing financial details, which were then used to purchase nearly C$50,000 in Bitcoin. Electronic forms of payment like cryptocurrency, gift-card codes and money orders are popular among cyber-criminals because they require no in-person interaction, are difficult to trace back to the fraudster and can be accessed from around the world.

Never click on links or attachments in an email asking you to confirm your details. When in doubt, contact the company or organization to ask if it was really them. Use a phone number that you look up yourself; do not use any number provided in a voicemail or call.

"VISHING"

Don't trust anyone phoning to tell you they're from the tax department, a bank, your internet service provider or a "tech support" department. Even if you recognize the number, these things can be easily spoofed.

"This 'voice phishing,' or 'vishing,' scam can be very convincing and threatening," warns Theresa Payton, a renowned cybersecurity expert who served as the first female White House chief information officer from 2006 to 2008. Based in Charlotte, North Carolina, Payton is the CEO and founder of Fortalice Solutions LLC, a cybersecurity and business-intelligence operations company, and is the author of several books on cybersecurity.

A popular phone scam goes something like this: "I'm calling from Microsoft. We've had a report from your internet service provider of serious virus problems on your computer. Can I help?" They'll tell you the problem means you could be without internet access if the issue isn't resolved.

They may give you instructions for granting them access to your computer from wherever they are—and they take control over your mouse and keyboard as if they were sitting in front of it. The fraudster then collects your data, either

IN THE UNITED STATES IN ONE RECENT YEAR, PHONE-RELATED SCAMS COST PEOPLE ALMOST $40 BILLION.

immediately or by installing hidden software that can send them information.

Seniors are often, but not always, the victims, though more members of Generation Z (born after 1997) are falling for vishing and online scams. The cybersecurity firm Security Intelligence cites data from Social Catfish, an online dating investigation service, claiming that the number of online-scam victims aged 20 and younger increased 156 percent between 2017 and 2020 in the United States.

In the U.S. alone, phone-related scams cost Americans a staggering US$39.5 billion between March 2021 and March





2022 according to Truecaller, an app that identifies and blocks spam calls and texts. This was the highest amount recorded since this annual report, done in partnership with The Harris Poll, began in 2014.

Fraudsters calling U.S. phone numbers may claim they're with the Internal Revenue Service (IRS), says Payton, using fake names and I.D. badge numbers, and may demand you pay fake tax bills immediately or else face arrest or other legal action.

"If you have caller ID, it may even look like it's from a bank or the IRS, as I recently experienced," Payton adds. "So just know that there are certain things your bank or the government will never do—and that's call, email or text you and tell you that you're going to be fined or arrested if you don't do this or that."

RANSOM EMAILS

Another scenario is when your passwords are held for ransom if you don't pay up. This kind of extortion message was received by Bob Lotich, a Franklin, Tennessee, educator and personal-finance expert. "The password that I had used on hundreds of sites was sitting there right in the subject line," Lotich wrote on his blog. "The email explained that they not only had my password but had hacked into my webcam."

The cybercriminals informed him that if he didn't send US$2,900 in Bitcoin in the next 24 hours, they would attack his accounts. (Lotich did not pay up, and fortunately the threat turned out to be an empty one.)

SPECIAL OCCASION AND EVENT SCAMS

While fraud happens year-round, scammers often tie it to something timely; maybe it's scams around Valentine's Day ("Click here to join this 50+ dating site"), tax season ("You're eligible for a refund"), pandemic-related schemes ("Sign up here for free home-testing kits") or war and natural disaster appeals (including phony charities seeking donations). For example, the CFAC says it received several reports of scams linked to Ukrainian aid in early 2022, when many Canadians were approached over social media to donate money to Ukrainian victims of the war. Instead, these funds went straight into the criminals' pockets.

CRIMINALS POUNCE IN TIMES OF ECONOMIC UNCERTAINTY, AND CAPITALIZE ON NATURAL DISASTERS.

Criminals also take advantage of people in times of economic uncertainty. Facebook users in the U.S. may have seen posts last year from a group called "Southwest Air Fans" claiming to give away a pair of airline tickets if you clicked on a link to enter a sweepstakes. The perpetrators stole personal information, which led to identity theft.

"Now, with so many people concerned about money, including high fuel prices, we're seeing a lot more fraudsters focusing on 'cost of living' scams such as fake giveaways, discounts and energy-tax rebates," explains Natalie Kelly, chief risk officer of Visa Europe in London, U.K.

The U.K.'s Department for Work and Pensions has issued warnings of scam phone calls, emails and text messages where the recipient is asked to claim or apply for a payment by registering via a web link.

GRANDPARENT SCAMS

Scammers love to target seniors because they pay so well. Disturbing U.S. data published by cybersecurity company Comparitech shows that while the average loss per incident from those in their 20s was US$324, that figure jumped to $426 for victims in their 60s, $635 among 70-somethings and a staggering median loss of $1,300 among those in their 80s.

Many seniors are hit by fraudsters who send a direct message over social media or via text message posing as their grandchild asking for money due to a medical emergency, a travel problem or to buy textbooks. They glean personal details from the older person's Facebook or Instagram photos, allowing them to craft a very believable message. The caller's phone number looks familiar, so you're more likely to answer (there are computer programs that let scammers choose the number they want to pop up on your phone).

Often, the "grandchild" pleads with you to not tell other relatives because they're embarrassed or scared. Wanting to help, the grandparents send money via wire transfer to the scammer.

In March 2022, an 81-year-old in a town north of Toronto was victimized by a scammer who pretended to be their grandchild. He said he had been pulled over by police and needed money for the fine. The grandparent paid, and then came a second call, supposedly from a Royal Canadian Mounted Police officer. The "officer" validated the "grandson's" story but said more money was needed. The man made four payments over three months—and lost a total of C$100,000.

Regardless of whether or not you are a grandparent, if you get a message like this and it appears to be from a loved one, before sending any money be sure to call the relative directly to ask if they really are in some kind of trouble.

ROMANCE AND "CATFISHING" SCAMS

Catfishing is when someone pretends to be someone they're not. The fraudster may use a phony name and photo to court someone online, usually over social media—such as Facebook, Instagram or a dating app—with the goal of making the victim fall in love with them. Once trust is obtained, they ask the victim for money.

Rebecca D'Antonio of Orlando, Florida, says she was cheated out of US$100,000 by a man she met online via an undisclosed dating site. "Matthew" said he was a widower and a single dad, and

after months of building up trust with D'Antonio over email and text messages, he persuaded her to send wire transfers by telling her he needed money for medical bills, or because he had lost his credit card.

HOW TO REDUCE YOUR RISK

All of this may make you want to unplug and go back to the pre-digital age. But it's reassuring to know that the problem is being vigorously tackled by governments and credit-card companies.

Worldwide, Visa has invested US$9 billion in fraud prevention and cybersecurity over the past five years alone, with an investment of US$500 million in artificial intelligence, machine learning and data infrastructure. This allows monitoring of suspicious activity on your account in real time, utilizing more than 500 "risk attributes" (clues) that may indicate fraud. In doing so, Visa can identify patterns of cybercrime and work with law enforcement to find these bad actors and bring them to justice.

Visa regularly works alongside the U.S. Department of Justice, the FBI, Secret Service and Europol to help identify and apprehend fraudsters and other criminals.

During the first half of 2021, Visa and these agencies brought down the notorious FIN7 cybercrime gang, perpetrators of an international ATM cash-



out enterprise —when people's bank cards are cloned and money withdrawn from ATMs—and recovered millions of dollars laundered by organized crime.

Mastercard has invested more than US$1 billion in cybersecurity since 2018. In the past three years alone, the company has prevented US$30 billion in potential customer fraud losses. In 2020, Mastercard established the Global Mastercard Intelligence & Cyber Centre of Excellence at its tech hub in Vancouver, to accelerate innovation in the security field.

"While the elderly are a known target group, we're also seeing fraudsters focus on the younger generation, children aged 14 through 18 who have just opened bank accounts and are tricked into giving out banking credentials on platforms like Snapchat," says Kelly. According to figures from the U.S. Federal Trade Commission, a whopping 44 percent of people in their 20s reported losing money to fraud.

Even if you're more tech-shy than tech-savvy, you can still protect yourself from cybercriminals. Read on to learn about a few precautions you can take.

USE STRONG PASSWORDS

Your passwords should be at least seven characters and a combination of letters (upper and lowercase), numbers and symbols. Don't include your birth year or your kids' or pets' names. However, a "passphrase" is a good idea; for example, "myc@tCis#1!" (derived from "my cat Charlie is no. 1").

Most importantly, never use the same password for all of your online activity, because if a site or app is breached, then the crooks will try that same password for your other accounts. Password-manager apps like 1Password and Dashlane can help keep track of all your login information and ensure each password is secure.

LIMIT THE INFORMATION YOU SHARE

Set your social media profiles to private. If someone asks to connect with you on social media, only accept their request if you know them. Even if it's a name and photo of someone you know, confirm it's them by reaching out to them in another way. If it's a fake, block and report the fraudulent message.

DOUBLE YOUR EFFORTS

For online banking and shopping apps, opt for two-factor authentication, which not only requires your password to log in but also a one-time code sent to your mobile device to prove it's really you.

HIDE YOURSELF

Use the "private" or "incognito" mode of your browser, which deletes your history and cookies after your session so the information is not left on the device. Better yet, consider reputable virtual private network (VPN) software to remain anonymous when online.

RETHINK YOUR EMAIL ACCOUNTS

The email accounts you use on social media should not be the same ones

you have tied to your bank accounts, health-care information or confidential conversations you may be having, says Payton. “This is because these publicly accessible email accounts can be easily harvested using free marketing tools.”

Instead, Payton suggests using an encrypted email platform like Proton Mail. In addition, use separate phone numbers for personal use and anything tied to finances. You can get a free secondary phone number on your existing smartphone from apps like TextNow, Google Voice or Talkatone.

SHOP SAFELY

Always use a secure internet connection—your home Wi-Fi, for example—when making an online purchase. Reputable websites use technologies such as SSL (secure socket layer) that encrypt data during transmission. (You will see a little “padlock” icon on your browser and usually “https” at the front of your address bar.) And experts say it’s safer to shop within a store’s app than the web.

Shop only on sites that take secure payment methods, such as credit cards, PayPal, Apple Pay or Google Pay. When shopping at an unfamiliar merchant’s site, look for some sort of security seal of approval, such as DigiCert, Better Business Bureau and VeriSign. On auction sites like eBay, check the seller’s reputation and read comments before buying a product.

Don’t shop (or bank) online using a public Wi-Fi hotspot—such as in a café, airport or hotel lobby—as they’re not as secure as your home Wi-Fi or a cellular connection. Instead, make a “personal hotspot” out of your phone.

PROTECT YOUR TECH

To prevent viruses or other malware, install anti-malware software on your devices. It’s like placing a deadbolt on your front door and activating an alarm system. Formerly called anti-virus software, anti-malware software can identify, quarantine, delete and report suspicious activity.

The most robust products include a firewall, encryption options and webcam-intrusion detection (to prevent someone accessing your webcam).

PROTECTION AGAINST SCAMS is about being on guard, learning to sense when something seems suspicious and installing software, such as anti-malware, to give you peace of mind.

Insights from a Late, Great Songwriter

What I do is tinker. I fiddle. If a melody comes too easily to me, I don’t think it’s any good, so I turn it upside down and look at it in the middle of the night.

What the world needs now is love, sweet love.

BURT BACHARACH



A HUMAN HISTORY IN RUST

In refuse, there's beauty—and hope for what can be renewed

BY *Dorothy Woodend*
FROM *THE TYEE*



Old tractor parts went into the creation of this buffalo sculpture in South Dakota.

THE RELATIONSHIP between people and their junk is a curious one. A 2022 documentary called *Scrap* shows just how oddly intertwined these two things can be.

When the film's director, Stacey Tenenbaum, came across a photo of an airplane graveyard just outside of Moscow, the place's ghostly quality—seemingly frozen in time—led her to wonder what happens to these kinds of things when they are no longer useful.

The film is chockablock with visual pleasure. Viewers float alongside retired trams and peer into the rotting husks of muscle cars spotted with moss and lichen. But a harder message lurks beneath the lilting images: The way back from irrelevance and obsolescence demands work—often the hard, dirty and dangerous kind.

That humans use and then discard endless amounts of stuff isn't exactly news. But how do we interact with what we throw away? The film showcases an alternative approach to the cycle of junking things once they've reached the end of their active life: There is worth in the saddest old hulks of refuse, including a downed plane, a wizened train or an ancient phone booth. In fact, old stuff can be transformed into something not only useful but beautiful.

Take, for example, the iconic red phone booth, an object familiar to any anglophile. Back in the 1980s, when Tony Inglis, who ran a trucking firm in England at the time, got the contract to remove phone booths that had fallen into ruin, he thought, "We can't just let them go."

So he started fixing them up. Over time, he purchased more than 2,000 of the decommissioned booths and set about resurrecting them: scraping off decades of buckled paint, replacing broken glass, slowly restoring dignity and handsomeness. Now, decades later, the refurbished booths are being put to a variety of new functions—everything from miniature libraries to coffee kiosks to defibrillator stations.

There is something deeply soothing, even redemptive, about watching a person attend to the act of restoration with care and precision. Surely if an ancient crusty thing can be brought back to a state of shining glory, humans can also be returned to a state of wholeness.

The film is as much about objects as it is about the people who love them. Consider Ed Metka of Kenosha, in the U.S. state of Wisconsin. In the 1980s the retired civil engineer began purchasing out-of-service streetcars from several North American cities, including Toronto, with a plan to refurbish and resell the vehicles.

As a child he was enthralled by streetcars and watched the operators so carefully that by the



COURTESY OF JOHN LOPEZ

age of five, he imagined he was fully capable of driving the trolleys himself. "I was fascinated by the trolleys, by their appearance and their clickety-clackety sound." Today, some of the streetcars he purchased are back in active service. "It's very satisfying to see these cars running again," says Metka.

The tenacity of metal, which stands long after fragile human bodies are gone, is the subject of South Dakota artist John Lopez's metal sculptures. He welds old tractor parts, bits of machinery and rusty lengths of chain into larger-than-life figures of buffalo, tigers and draught horses. In a stunning homage to his late father, he even created an ancient, gnarled tree covered with delicate pink metal petals.

As Lopez explains, part of his inspiration came from an old farming custom in South Dakota: dragging broken pieces of equipment up to the top of hills. "It just brings back all the memories from the old days," says Lopez. "It has meaning, a lot of meaning."

Poised against the landscape, the sculptures stand like dinosaurs, markers of a time and place—and a lifetime of work. His intent was that the relics would take on new life as conversation pieces, and so continue to be useful.

PETER DAZELEY/GETTY IMAGES



Old phone booths were given new life for this art installation in London.



In Delhi, India, workers strip parts out of discarded cellphones.

In another part of the world, abandoned machines become a home for families and a source of income. Just east of Bangkok, Thailand, Fah Boonsoong and her kids and grandkids live in a hollowed-out jumbo jet airliner—just one of many spread across a field. Tourists pay to take photographs with the derelict planes.

As the kids bounce up and down on the wings of the aircraft, their grandmother talks about being the caretaker of this airplane graveyard. But she takes issue with the word "graveyard," insisting this is a vibrant community, alive with laughing, playing kids. "Graveyards are for the dead. We're living people, not spirits."

Resurrection is also the focus of architect Tchely Hyung-Chul Shin, who works in South Korea and France. His architectural firm repurposes sections of old tankers and cargo ships into churches and other structures. Freed from rusting turpitude and fashioned into soaring vaulted spaces, ships' hulls, ribbed like the inside of a whale, become things of airy beauty.

But such startling transformations aren't easy. Cutting massive ships into their component parts is gritty, rough work. Retired vessels are sourced around

SAUMYA KHANDELWAL



the globe, but the reconstruction takes place mainly in Spain, where an international team of shipwrights disassemble the boats. *Scrap* shows extraordinary scenes of the behemoths being dragged out of the water, turned on end and sliced into parts.

As Shin explains, when wiping away decades of accumulated rust from a section of hull he feels connected to these old aquatic warriors like he does members of his own family. "There is a lot of emotion when I see these pieces and this boat. It's like taking care of a friend or a parent."

Meanwhile in the United States, the disintegrating hulks of old cars emerge out of the landscape of White, Georgia, like some new type of growth. Throughout the 14-hectare site—known as Old Car City—more than 4,000 vehicles have permanent parking spaces, and curious sights emerge from the gloom. Atop a 1950s roadster heaped with pine needles, an abandoned doll pokes out. Some vehicles have been here so long that trees have grown through them. It's kind of beautiful, and a little eerie.

Proprietor Dean Lewis sees the White junkyard as a kind of a museum. "It's art, nature and history," he says. Lewis inherited the place from his parents, who started it as a used car lot in 1931, but since then it has evolved into something more akin to a kingdom of decay.

From the hand-painted signs that declare "The Meaning of Life is to give Life Meaning" to the worn dirt paths carved through the woods, the place is a distinctly rustic venue. The constellations of automotive rust possess great beauty, patterns and colours stippled on the metal exteriors like a modernist painting. It is both lovely and sad: the hopes and ambitions of another age slowly disintegrating into rust and dirt.

"WHEN THERE IS SOMETHING THAT BOTHERS ME, THE ONLY THING I CAN DO IS PHOTOGRAPH IT."

In other parts of the world, the scale of disposable culture takes on epic proportions. In Delhi, old cellphones and TVs are dismantled by workers who make a living stripping the parts out of junked technology. Photographer Saumya Khandelwal documents the lives of these workers, her images driven by a need to do something in the midst of a juggernaut of waste: "When there is something that bothers me, the only thing I can do is photograph it."

The intermingling of decay and new life as portrayed in *Scrap* makes for an interesting conjunction of opposing forces. The sheer magnificence of elemental, brutalist scrap remade into functional, beautiful things is a reminder that with care and love, almost anything can be brought back from the brink.

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This therapy is gaining credibility as it shows real results

When Music Is Medicine

BY *Anicka Quin*

THERE'S ONE PATIENT that SarahRose Black still thinks about. Back in 2019, the nursing team in the palliative care unit at Toronto's Princess Margaret Cancer Centre asked if she could reach out to a patient who had been there for about a week. The man was struggling, and unwilling to engage with staff or be part of any activities. "They told me, 'He's short and grumpy with us, and we wonder if you might have an in.'"

ILLUSTRATION BY *Lynn Scurfield*



Black isn't a doctor or a nurse. Since 2013 she has played an important role for patients as Princess Margaret's on-staff music therapist. On any given day, she might see one person who's anxious about an upcoming procedure, another who's undergoing chemo and in need of a soothing moment. Or, like the man in the palliative care unit, it might be someone who doesn't yet know they need her.

So, on a wintery Wednesday afternoon, Black approached the patient's room and introduced herself. She asked if she could sit, and offered to play some music. In an effort to convince him, she said, "If you don't like it, you can tell me to leave,'" she recalls.

After some gentle urging, the 70-something man, who had lung cancer, told her a few classical composers he liked and then turned away to look out the window. But as she started to play one of his favourites, Bach, on her portable keyboard, a change came over him. He unfolded his arms, turned toward Black and started to cry.

She stopped playing. "Do you want me to continue?" she asked.

"Absolutely," he said through tears.

"It was as if the music went places that nothing else could," recalls Black. "He shared with me afterward that he'd been holding in so much and had been unable to talk about anything—but the music showed up at a moment when it felt like a hug."

Anyone who has felt that spark of joy when a favourite song comes on the radio at just the right moment—or wept along with a singer who is expressing heartache—will understand the emotional resonance of music. But now, a growing body of scientific evidence is actually demonstrating that music can be medicine, too.

A MUSIC-THERAPY SESSION CAN BE AS UNIQUE AS AN INDIVIDUAL PATIENT'S NEEDS ON A GIVEN DAY.

In a review of 400 research papers looking into the neurochemistry of music, Daniel Levitin, a psychologist and neuroscientist at McGill University in Montreal, found that playing and listening to music had clear mental and physical health benefits, including improving our immune systems and reducing stress levels.

One 2007 study from a team of Spanish researchers found that listening to music before surgery had the same effect in reducing preoperative anxiety as taking Valium—an important finding, as anxiety before a major surgery can affect post-operative pain and

recovery time. Another Spanish study, conducted in 2018 in the palliative care unit of Barcelona's Hospital del Mar, found that patients participating in a music-therapy program experienced significant decreases in tiredness, anxiety and breathing difficulties, as well as an increase in feelings of well-being.

Even major health-care institutions are embracing music therapy on a wide scale. In 2019, the National Institutes of Health in the U.S. introduced significant funding—$20 million—to support research projects in music therapy and neuroscience.



A music-therapy session can be as unique as an individual patient's needs on a given day. With Black, who also sings, that inevitably involves the cart of instruments she travels with ("I'm pretty much a one-woman band," she jokes). Aside from the keyboard, to create rhythms and texture she has other instruments such as a guitar, tambourine, singing bowls and more. She also brings recording equipment and an iPad, to supply song lyrics.

If a patient loves classical music, she'll play it. Maybe it's folk or jazz. She did a Bob Marley tune for a man's assisted-dying process. "One woman spoke no English, but she taught me a Farsi folk song, and we had this wonderful exchange," says Black. "She'd sing a line, I'd sing it back, and we were singing this beautiful song together."

She's gentle in her approach with patients. "I make it very clear that pre-existing musical experience or training isn't required to participate," she says. "If I were to ask, 'What kind of music do you like?' that might be a difficult question to answer. Instead I ask what they want to *feel*, which is an easier question to answer."

If the goal is pain management, Black might match the pace of her playing with the patient's breathing, and then gradually slow the music. This process, called "entrainment," can help slow the breath, too, and has a calming effect.

Or a session might be about helping a patient process the emotions stemming from what they are going through. It may even be about connecting with loved ones who are in the room with them. "Sometimes the patient says, 'I'm having such a profound experience. I



things with my left hand is difficult," she says. "But it's really good to get this regular rhythm going—it gives you a feeling of overcoming a problem."

Rx 4 Rhythm is just one of the programs offered at the Johns Hopkins Center for Music and Medicine in Baltimore. The research institution is the brainchild of Dr. Alexander Pantelyat, a violin player and former member of the Penn Symphony Orchestra in Philadelphia. Today, he is a neurologist who specializes in movement disorders like Parkinson's and Huntington's.

have no words,'" she says. "We know from so many wonderful brain studies that music can trigger memories and touch parts of the brain that other mediums cannot."

ONCE A WEEK, Carol Cameron hops on Zoom from her home in Madison, Wisconsin. She'll be joined by a dozen or so other participants, all following along as music therapist Jason Armstrong Baker leads them through drumming exercises—sometimes clapping their hands in a distinct rhythm he's laid out for them, sometimes tapping on their own bodies.

Like everyone taking part in the session, Cameron, 71, has Parkinson's disease, and this drumming circle—known as Rx 4 Rhythm—is designed to help strengthen her coordination. "My tremor is on my left side, so learning

The centre provides music therapy and more, Pantelyat explains. They're taking music into the "precision medicine" realm.

Applying that kind of treatment to movement disorders is relatively new; previously, it was mainly the domain of cancer therapies. "There's a revolution in oncology and cancer research—more people are being cured, and much of it can be attributed to a very targeted precision treatment that really is individualized for the patients," he explains. "Just listening to music activates many regions of the brain simultaneously."

He adds that there is an understanding in the field of music medicine that there can be tailored interventions using music that a person actually likes, that speaks to them culturally, personally, autobiographically.

One study from the Center for Music and Medicine followed a choir composed of Parkinson's patients (called the "Parkinsonics") to learn how singing might impact the speaking voice of those patients. After 12 weeks, the singers' speaking volumes—which often fade as Parkinson's progresses—grew demonstrably stronger. The Rx 4 Rhythm drumming circle, meanwhile, came out of a 2015 study that showed that Parkinson's patients had improved their ability to walk after six weeks of drumming practice.

The centre's blueprint is to continue to fund these musically oriented groups, even after the studies have wrapped up. "Patients in the Parkinsonics told us that they didn't want to stop singing when the study was over," says Pantelyat. The centre now funds a professional choir instructor, a music therapist and a social worker to help the choir members carry on with their classes, which rolled onto Zoom during the pandemic.

And while sessions at the centre do have therapeutic goals—working on coordination, say, or breathing techniques for anxiety management—there's a community-building element to the groups, too. Kerry Devlin is the centre's senior music therapist and runs an online support group for people with a broad range of neurological disorders, along with their care partners—those people in patients' lives, usually loved ones, who are supporting them through their illness.

"There can be folks who are experiencing really intensive symptoms, like a decline in their ability to verbally communicate," says Devlin. Music, she notes, can sometimes help such patients find ways to respond again.

DEVLIN SAYS IT'S A POWERFUL THING TO WITNESS SOMEONE FIND THEMSELVES AGAIN FOR A MOMENT, THANKS TO A SONG.

"I've had the honour of making music with people, and all of a sudden they're coming up with new words. It turns into this beautiful improvisational moment—and a care partner is saying, 'I've never seen this happen.'"

It's a powerful thing, she says, to witness someone find themselves again for a moment, and when a song is the vehicle for that shift.

Much of what Devlin does is designed to help patients feel like more than just cogs in the medical system. "Of course they want to come and receive medications and treatments, but they're also a person," she says. "It's important when we're thinking about

holistic care to provide opportunities for patients to actually process the impact that a diagnosis is having on their lives."

Music can have a profound effect on helping sick children, too. Ruth Hunston is a music therapist in the "play department" at the Great Ormond Street Hospital in London, England. As the U.K.'s oldest children's hospital, it sees more than 69,000 patients a year.

"When children are in the hospital, their worlds get much smaller," says Hunston, who explains that her program, introduced in 2019, helps give young patients back some sense of control. "They're having so many things done to them and around them, but this allows them to create something themselves."

Extended time in pediatric care can also affect a child's development, says Hunston. In light of that, much of her program is designed to help them progress. "I've had lots of infants who have sat up for the first time at the drums, because they're just so motivated to play," she says. "Or they start making sounds because I'm singing to them, and they want more."

The parents also become part of the therapeutic process. "It's not easy being in a hospital, and it's not easy to leave your child there," she says. "What's really lovely is when you go in and you start to make music, and the children invite their parents to join. There's this beautiful interaction between everyone, and sometimes I get to step back and just watch them play—to really laugh and have fun."

"THERE'S THIS BEAUTIFUL INTERACTION BETWEEN EVERYONE, AND SOMETIMES I GET TO STEP BACK AND JUST WATCH THEM PLAY."

AT THE DR. BOB Kemp Hospice in Hamilton, Ont., music therapy has become an integral part of patient care in residential end-of-life settings. "The palliative journey isn't really about someone dying," says Doug Mattina, director of the hospice's pediatric unit. "It's about bringing the most joy. It's providing the wrap-around care not only for the individual but for those impacted by it."

Mattina himself experienced the music-therapy program when his father spent his last days at the hospice. "I remember when the music therapist said to him, 'Bill, what kind of mood are we in today?' And he said, 'Today is time to dance,'" says Mattina.

He was so moved by the whole experience that he left a career in the foreign

service to work full-time for the hospice. "Even though my father was feeling like crap, and we knew that we had days or hours left, me, my sister, my brother and my mom would dance around his bed. His favourite song for this was 'Rasputin,' and he would request high kicks from us as he clapped along. Sometimes he'd fall asleep as we danced."

Sara Klinck directs the music-therapy program at the hospice, where, at a patient's bedside, she might improvise a call-and-response song to help them open up about how they're feeling that day, or help a resident write a song as a legacy for their family.

"We might also revisit songs that have personal significance for residents and families, as a way to communicate emotion to one another," she says. "It can feel like a whole choir as visitors and family members join in. For some people, sometimes what's hard to say is easier to sing."

It could also mean fulfilling a lifelong goal before a patient passes away, as she did for someone with late-stage ALS. "He had very limited movement in his hands but had always wanted to play guitar," says Klinck.

She brought in the instrument and laid it on his lap in bed. "He was able to put his hands on the strings and interact with them; often I moved the guitar, as well." This music experience was something his family felt would be very meaningful to him.

Finding those moments is the skilled therapist's role, but as SarahRose Black notes, people have been connecting with music for their whole lives—she is just helping them access it again at a time when they need it most.

"We have a heartbeat, so we have a drum inside us; we are wired to be musical people," she says. She smiles softly as she reflects back on one patient, a man in his late 30s with late-stage brain cancer.

"He said, 'SarahRose, I have a lot of friends, and they're great. They show up and they're helpful, but they don't really understand what's going on here,'" she says. "He told me that the music is like a friend who 'gets it.'"

Animal Speak

The greatness of a nation and its moral progress can be judged by the way its animals are treated.

MAHATMA GANDHI

If animals could speak, the dog would be a blundering outspoken fellow; but the cat would have the rare grace of never saying a word too much.

MARK TWAIN



GOOD NEWS ABOUT HOUSEWORK

BY *Richard Glover*

A 2021 STUDY from Singapore found that people who do housework are fitter than those who don't. Tackling "high intensity" tasks such as cleaning windows helps improve physical health and mental faculties, especially among the elderly.

The mental aspect doesn't surprise me. Attempting to change my duvet cover often leaves me entirely submerged in the thing, my hands holding its corners inside the cover, wondering what to do next. I'm pretty sure the widespread belief in ghosts stems from people becoming permanently entangled in their duvet covers.

Stacking the dishwasher is worse, with a hundred possible solutions to the problem of fitting everything in, only one of which is judged as correct by other household members. Has a dishwasher ever been stacked without someone saying: "Not that way, you've got it all wrong!"?

The bathroom leads to more disputes.

ILLUSTRATION BY *Sam Island*

It's my belief that every time you have a shower, the shower has a shower and is therefore self-cleaning. But my wife, Jocasta, believes the shower recess needs to be cleaned separately, a task I achieve by stripping naked and attacking it on my knees with a scrubbing brush, my backside waggling from side to side as I work away at the grime.

Jocasta enjoys the sparkling results but remains uncertain about whether it's worth the flashbacks. Apparently, there are some things that, once seen, cannot be unseen.

As for cleaning windows, it's impossible to achieve a good result. I work hard at it, spraying on the fluid and scrubbing the glass with a crumpled sheet of newsprint. Everything looks spotless until the sun hits the windows the next morning, upon which they resemble a Jackson Pollock painting.

I then wash them again, which only moves the swirls from one place to another. Maybe I'm using the wrong section of the newspaper.

Next in my housework/workout regimen, I sweep up, which creates a pile of dog hair so unfeasibly large that I wonder if there's anything left of the dog. Maybe I could sell his hair for wigs and turn a profit.

The late British writer and eccentric Quentin Crisp famously claimed that if you don't do housework, dirt will stop accumulating after four years. I don't know if this is entirely true. I have memories of student houses in which the type of flooring was uncertain, so complete was the coverage of motorcycle parts, pizza boxes and general filth.

I remember the moment someone moved a pizza box and exclaimed: "Hey, there's a carpet under here!" Nature abhors a vacuum and so did these young men. Was it a coincidence that they were all out of shape? I think not.

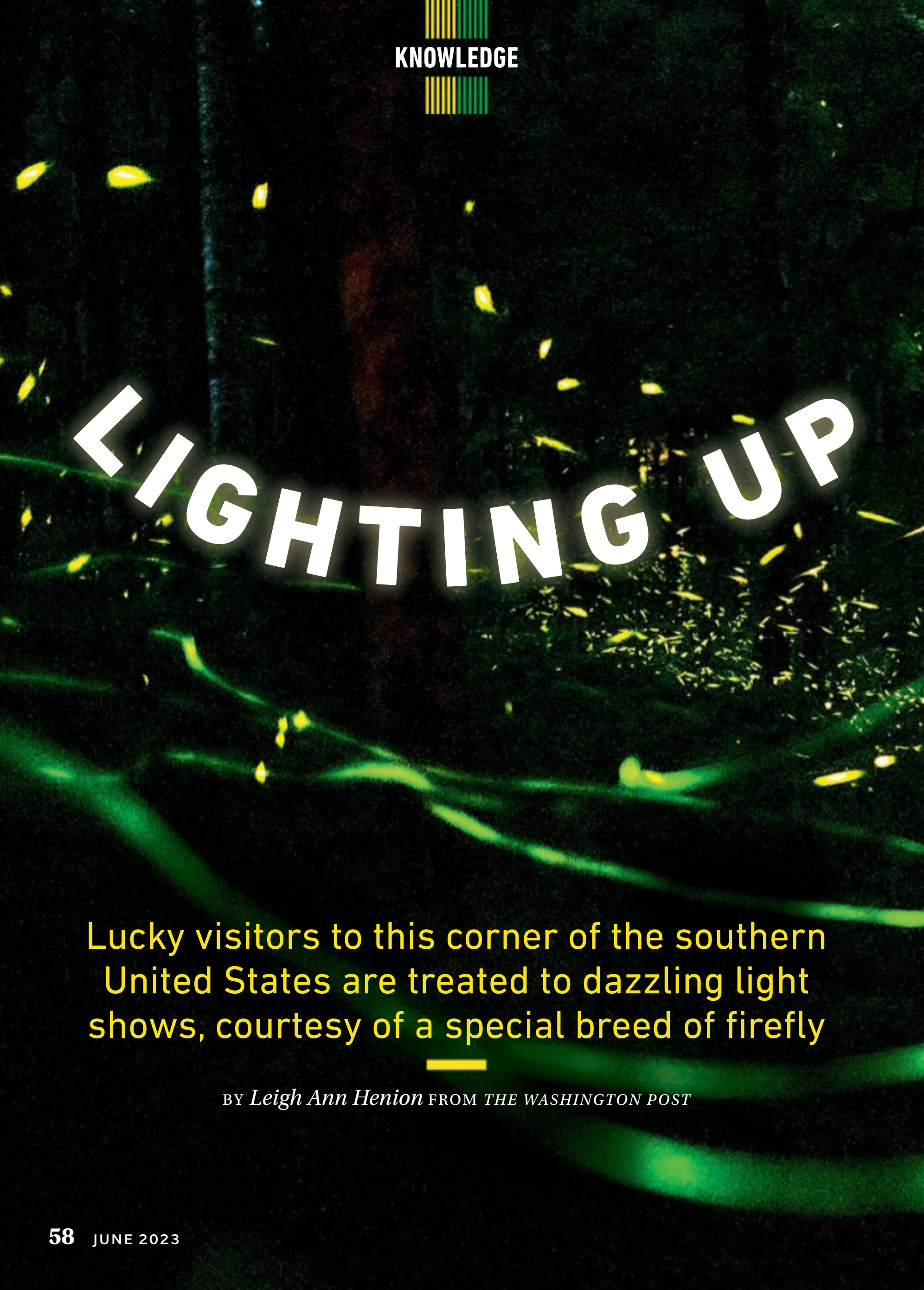
The bathroom was worse. Every time I hazarded a visit, I remember optimistically wondering if "Putrid Black" was just another colour in the range of bathroom fittings.

I hope my housemates eventually realized one of life's great truths: Romantic partners find people who perform their share of the housework more arousing. Jocasta's erogenous zones, I've learned, include the kitchen floor, the bathroom and the lint filter in the clothes dryer.

What other housework can we throw ourselves into and make ourselves fitter at the same time? I have found that organizing the Tupperware drawer is a good start, as it tends to involve a lot of crouching, standing and then crouching again. There's also the moral and intellectual tussle of whether to throw out the lids that have no bottoms and the bottoms that have no lids, or wait to see if missing parts turn up.

And by never having the lawn mower serviced, I have cleverly created a system in which starting it involves two hours of sweat-inducing cord-pulling.

That's the thing about housework. As the Singaporeans discovered, you've got to use your body *and* your brains. R



LIGHTING UP

Lucky visitors to this corner of the southern United States are treated to dazzling light shows, courtesy of a special breed of firefly

BY *Leigh Ann Henion* FROM *THE WASHINGTON POST*



THE NIGHT

I'VE BEEN IN Great Smoky Mountains National Park in Tennessee for less than an hour when I'm mistaken for a woodland fairy. Even though I'm here to witness the ethereal phenomenon of synchronous fireflies—*Photinus carolinus*, a species famed for its ability to flash in unison—the association is surprising. In fact, when I hear a stranger calling out from across the forest glen, it takes me a second to realize that she's addressing me. She waves me over and asks: "Are you a magical creature?"

The woman gestures toward the two young children with her and says, "We saw you walk down to the river, and then you disappeared. I told the girls you must be magical. This whole place is magical."

It does feel as if we've travelled through a portal to another realm. The woman is sitting on a porch stoop, but there's no porch. And there's a chimney nearby, but no house. To reach a trailhead in an area of the park known as Elkmont, we—along with hundreds of other visitors here for the fireflies' light show, which generally occurs in a two-week period around early June—had to walk along an avenue of cabins, abandoned after the park was formed.

A Tufts University study of firefly tourism, released in 2021, found that, globally, one million people travel to witness firefly-related phenomena every year. The synchronous fireflies of Elkmont are some of the most famous in the world.

The firefly event in Great Smoky Mountains National Park, which straddles Tennessee and my home state of North Carolina, draws seekers from across the continent. The U.S. National Park Service has a lottery for people to secure passes, but even so, the annual gathering isn't a small one. In fact, the reason that I had dipped down to the river was to get a brief respite from the crowd.

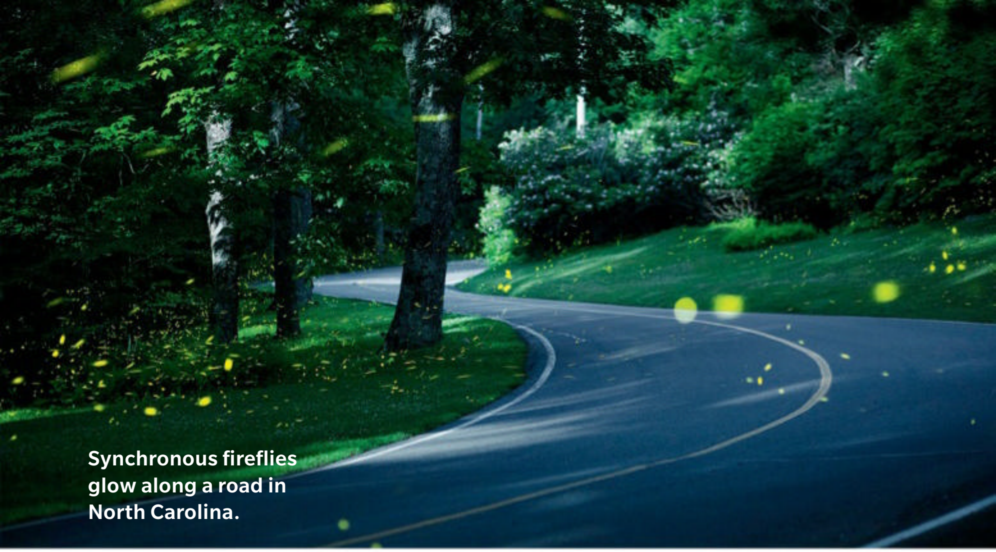
ALONG THE TRAIL designated for firefly viewing, people have been setting up folding chairs. Firefly habitat is so specific, so mercurial, that no one, not even rangers, can predict the best seats, so people find a spot that feels right to them. Finally, dusk comes.

When the first synchronous fireflies appear, sporadically flashing, they don't seem to be much different from common species that illuminate backyards. But as their numbers grow to be thousands—each appearing to light the one next to it, like a candle being passed—the crowd stands.

For a while, the insects' rhythm remains a bit discordant, like that of an orchestra warming up. Scientists have found that the more individual fireflies participate, the more in tune they get. Before long, there are so many that it's clear they're working in unison. The effect isn't a lights-on-lights-off situation, as I'd expected; it's more like watching a stadium wave, when members of a crowd successively lift their hands.

The insects are responding to each other's light, working with their neigh-

ALL PHOTOS BY TRAVIS DOVE/*THE WASHINGTON POST MAGAZINE*



Synchronous fireflies glow along a road in North Carolina.

bours to find their role in the whole. From a distance, the activity appears as a shimmering current running through the forest from right to left: *whoosh*. Then darkness. Then, again, a whoosh of light.

The woman beside me calls out "Dun, dun, dun, dunnn," mimicking the famous motif in Beethoven's Symphony No. 5. "It's like they're playing music," she says.

Lynn Faust, a naturalist who used to spend summers in the now-defunct Elkmont community, grew up admiring the fireflies we're watching. As an adult, she came across an article about synchronous fireflies in Asia, and she recognized similarities between what the scientists were reporting on there and what she'd seen as a child.

When she reached out, researchers were skeptical. They asked her to imagine the flashing lights as musical notes and record their rhythm on a blank piece of sheet music. Her efforts convinced firefly scientists that they should make the trip to the park, where they confirmed the existence of a previously unrecorded synchronous species.

Most people in attendance seem to be familiar with the concept of firefly flashes as a function of mating. The insects we're seeing are males signalling to females, who stay close to the ground.

Scientists generally agree about the mating-related utility of fireflies' bioluminescence, but they've long tussled over how, exactly, fireflies make light. It's thought that illumination occurs when a firefly opens an air tube, allowing oxygen to ignite organic compounds in its body. This means, in a roundabout way, that when you see a firefly light up, you're watching it take a breath.

Collectively, the crowd gasps and sighs as the fireflies flit through the forest. But despite the dazzle, I find my eyes wandering toward the infinitely dark ground. Because once I started

researching fireflies, I came across this incredible fact: By the time we see a firefly in flight, it has potentially been living among us for up to two years in various life stages, dimly glowing on the ground. What we're witnessing now is the grand finale of a long-term metamorphosis.

These creatures have been waiting for their turn to rise. And, finally, they've found it. When people begin leaving the park, the fireflies are still working like cells of a glowing, forest-sized lung.

THERE ARE MORE than 2,000 known species of fireflies in the world, and 19 of them reside within the Great Smoky Mountains National Park. Will Kuhn, director of science and research at Discover Life in America, a non-profit centred on biodiversity, believes there are more. "I don't think we've found all the firefly species in the park," he says.

There is a chance that we won't know what we've got, even after it's gone. Globally, firefly populations are under assault, and the largest threats to their well-being, according to the Tufts report, are habitat loss, pesticide use and light pollution.

When I meet Kuhn, he's holding court with two dozen people who've signed up for a synchronous firefly viewing event hosted by his organization. Since the founding of Discover Life in America in 1998, the group has documented more than 10,000 animal and plant species in Great Smoky Mountains National Park—more than 1,000 of them were previously unknown to science.

We're getting ready to travel down the mountain to Norton Creek, a private habitat outside of the park. Kuhn knows the area to be home to a large population of synchronous fireflies.

One of the women encircling Kuhn says that she's excited because she has only "plain old fireflies" on her farm in Ohio. Kuhn says that her region is likely home to several species. The most common firefly in the United States is the big dipper, but there are 150 species with specific habitats and behaviours in North America. Each of the bioluminescent species' flash patterns is as unique as a fingerprint.

Susan George, from San Antonio, Texas, is amazed that fireflies are tenacious enough to find homes in the city, in rare squares of land spared from asphalt and concrete. "Sometimes, when I'm



A synchronous firefly lights up in rhythm with all the others around it.

sitting out in my yard, fireflies land right on me," she says.

The woman from Ohio nods. "When they do that," she says, "it feels like love."

Unfortunately, when we finally make it to the waterway, the local population of synchronous fireflies fails to greet us. There are only a few partnered dots of light. It's several degrees cooler here than it has been in the Elkmont region. The synchronous residents of Norton Creek apparently need a few more days to fully wake.

Just when it seems that spirits are irretrievably waning, someone spots a strange orb of light rising from the understory. It peers at us from across the creek, blue and unblinking.

I'VE BEEN FAMILIAR with the term "blue ghost" for years, as it related to my home region's firefly attraction. Synchronous fireflies and blue ghosts have slightly different mating seasons, but they often overlap. Currently, on Norton Creek, it seems to be the blue ghost firefly population that's peaking.

The ghost moves toward us. And it isn't flying, it's floating.

Soon there are carpets of light in and around the forest on all sides of us. These creatures are notable for their neon-bright colour and enduring flashes—which hold for up to 60 seconds at a time. Their traceable flight patterns make them look as though they're intoxicated.

As group members wander off, I find myself walking alone. But with every step I take, more fireflies reveal themselves. Hundreds of them are swooping and swerving and serenading me—not as a visitor to this landscape, but as part of it.

By the time I hear voices on the road ahead, I've lost all sense of time and space. In dim moonlight, I can make out half a dozen silhouettes. Kuhn's voice is hushed. "It's amazing what happens when you let your eyes adjust to the dark—when you take the time to really look."

FOR WEEKS AFTER I return home from Tennessee, I find myself scanning meadows and creeks. And each night, I get the urge to go outside to check on the local firefly population.

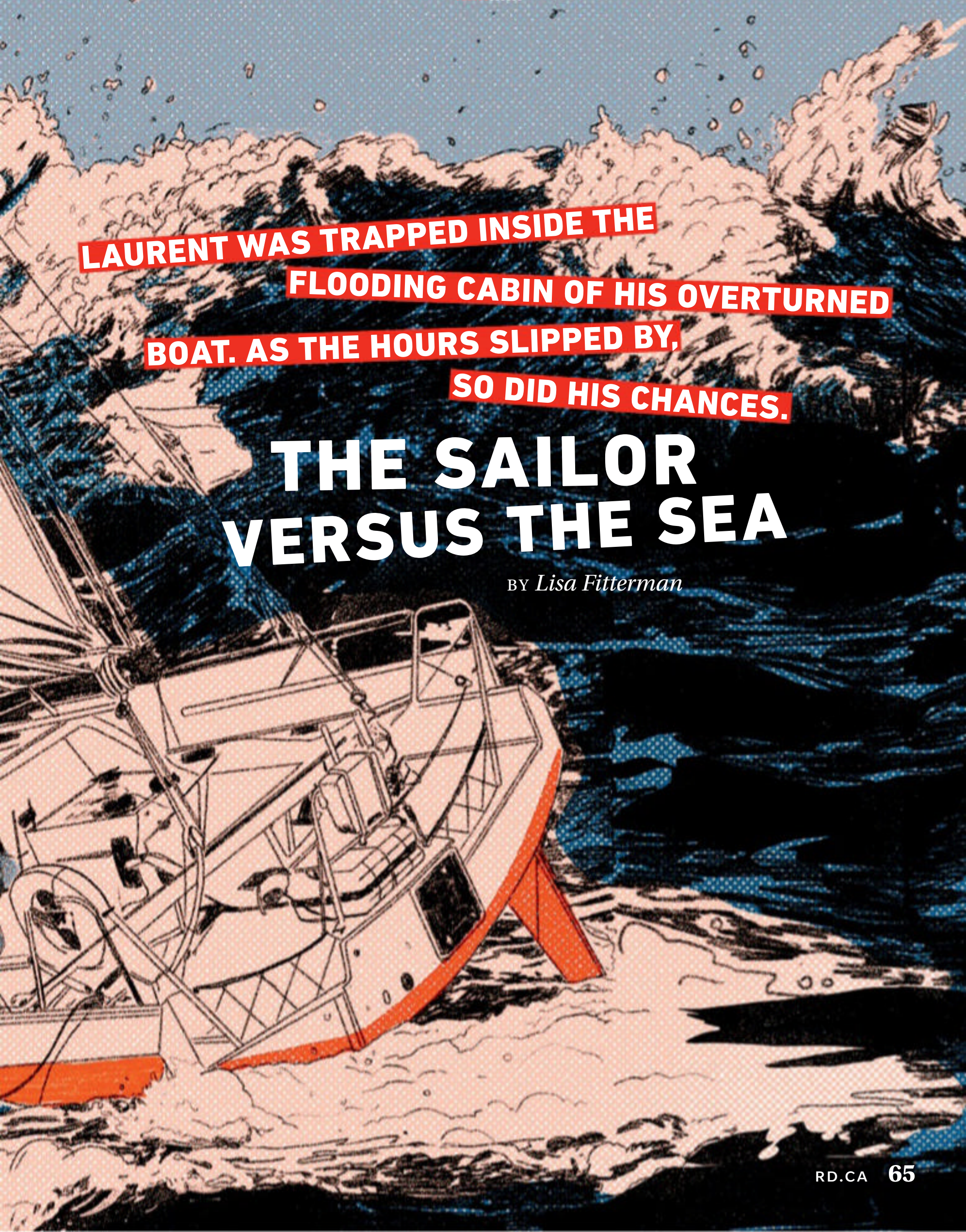
I take to sitting beyond an old chicken coop, watching femme fatale fireflies winking from treetops and big dippers plunging through meadows. One night, I decide to explore the valley beyond my immediate environs.

After a little less than a kilometre, I slow my stride. I see a lone firefly blinking. Slowly, entire constellations of fireflies rise from the coal-black earth around me, twinkling with oxygen. I attempt to align with their rhythm: inhale, light; exhale, dark. We are breathing at this moment, in sync, on this complicated planet. And even the deepest parts of the mountain valley I'm standing in are pulsating with life, illuminated.

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ILLUSTRATIONS BY *Nicole Rifkin*



LAURENT WAS TRAPPED INSIDE THE FLOODING CABIN OF HIS OVERTURNED BOAT. AS THE HOURS SLIPPED BY, SO DID HIS CHANCES.

THE SAILOR VERSUS THE SEA

BY *Lisa Fitterman*

IT'S JUST PAST 8 P.M. ON AUGUST 1.

Laurent Camprubi is about 25 kilometres off the coast of northwestern Spain, hoisting the mainsail on the deck of the *Jeanne,* a streamlined 12-metre sailboat. Ever since he left Lisbon, Portugal, the day before, he has been fighting the elements. But he is in his element, too.

Laurent is aiming to qualify for the Route du Rhum, a 6,562-kilometre race held every four years from Saint-Malo in France to Guadeloupe, a group of islands in the Caribbean. On a night that's anything but calm, the solo athlete is tacking, adjusting, to ensure the vessel gets to its destination of Cherbourg, France, about 1,700 kilometres to the northeast.

After more than 12 hours of sailing, Laurent takes a much-needed break. While a beacon automatically broadcasts his position to Route du Rhum organizers every 15 minutes, the waves batter the *Jeanne* in a language all their own—screams, whistles, crashes, roars.

He knows that in the distance is Cape Finisterre, so named because the craggy peninsula was once thought to be the end of the world, but two- to three-metre waves have turned his surroundings into a uniform dark grey.

Tall and lanky, the 62-year-old had been sailing since his 20s and was eager to tackle the Route du Rhum, which he considered "the Everest of sailing." A stylist for a Portugal-based fashion footwear company, Laurent lives with his partner, Virginie Philip, and their two children in Marseilles, where he had been training for this challenge for months. The race would be a test of strength and perseverance, and the lifelong cyclist and runner had also been doing weight training to build his core muscles so that he would be better able to keep his balance in rough seas. And tonight, it is indeed rough.

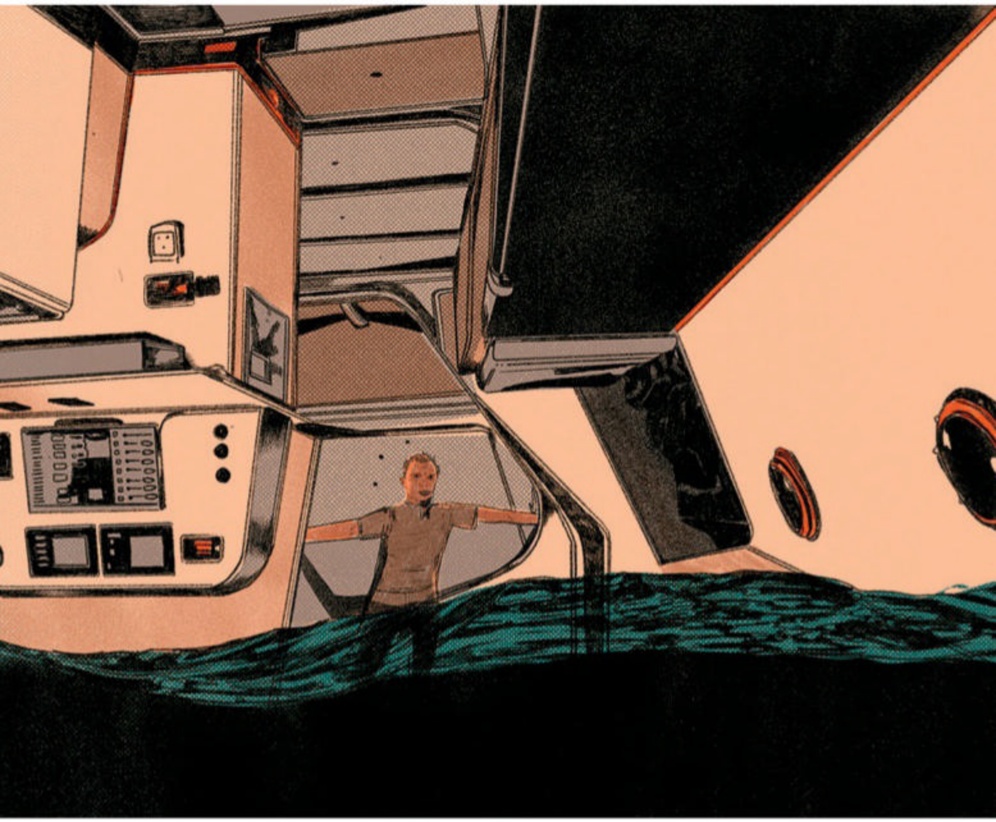
As Laurent lies in the cockpit, resting, a wave crashes into the boat, which suddenly slows down. Opening his eyes, Laurent sees the boat has begun to list to one side and he immediately knows what has happened: He has lost the keel, the weighted fin that runs along the bottom of the boat to keep it upright. The *Jeanne* is capsizing.



You have 15 seconds to get below deck before the boat flips over, he tells himself. *Your life depends on it. Move!*

Once below, Laurent attempts to close the door, but water keeps rushing in, making the task impossible. The *Jeanne* violently flips upside down, bobbing in the waves. Laurent has been thrown to the ceiling, and is crouched on what is now his floor, surveying the damage. His prescription eyeglasses are smashed, as are the computer and other electronics, and the pieces are floating in seawater.

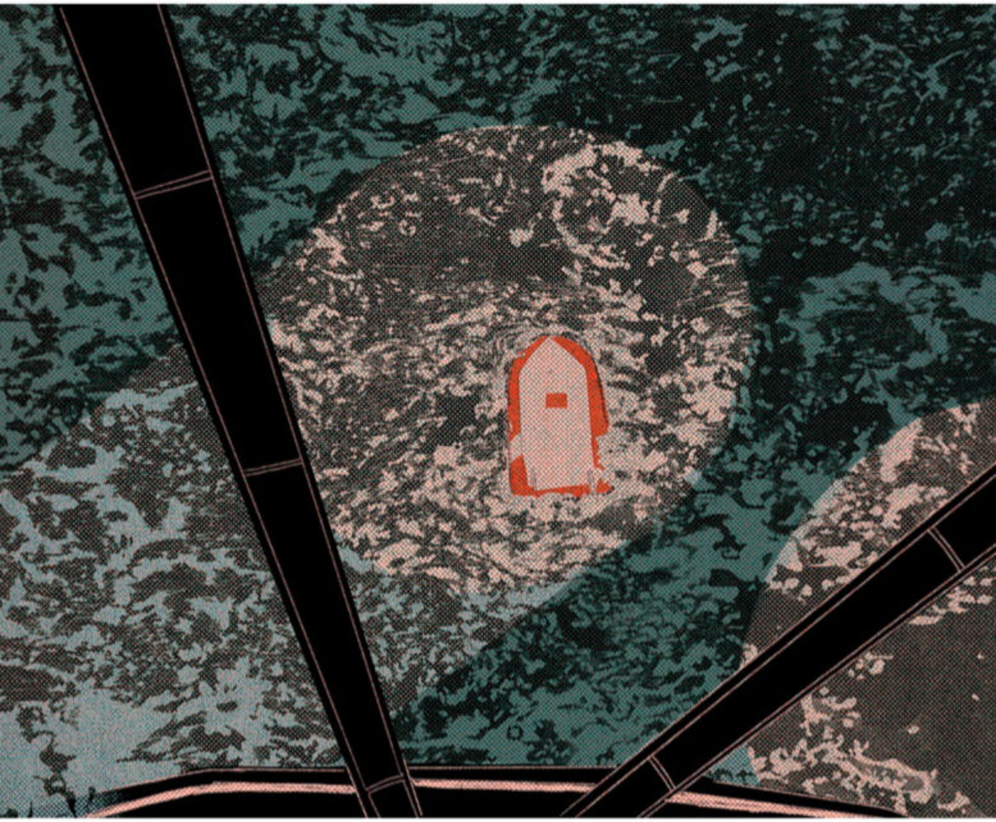
He decides to venture further into the boat to retrieve his survival kit, then return to what he judges to be the safest spot, by the door. Almost 20 minutes after capsizing, he sets off his SOS signal and turns to his bright red survival suit. Made of waterproof neoprene, it's a bulky, stiff onesie, complete with hood and attached booties. He knows that adrenaline is still keeping him warm, but once it wears off, the suit is his



best defence while waiting for whatever help might come. He's in an air bubble; the water, about 20 C, is now up to his chest. So, on goes the suit, one cramping, chilled leg at a time.

AT 8:23 P.M., MOMENTS AFTER Laurent had activated his emergency beacon—which contained a radio transmitter and global positioning system (GPS)—the Spanish coast guard detected it. An elaborate, tightly choreographed effort was immediately put into action, complete with two rescue ships, three helicopters and five divers. It was dark outside, and dangerous. The question on everyone's mind: How could the vessel's lone occupant, no matter how experienced, survive in such weather?

At 9:26 p.m., one of the helicopter pilots spotted something white in the angry sea: the bottom of a sailboat. One



option—to secure the vessel with slings and hoist it onto one of the ships with a crane—was dismissed as foolhardy because of the wind and the danger it posed to Laurent. Besides, no one knew what was happening inside.

Tasked with checking for signs of life, a diver was lowered by a cable onto the hull of the boat. He banged on the hull, shouting that help had arrived. But his words blew away in the wind.



LAURENT IS FINISHING putting on the top part of his survival suit when he hears someone banging on the hull. *Thump. Thump. Thump.* He tries to hammer back, but his arms get entangled in the sleeves.

"I'm here!" he shouts. "I'm here!"

Then, nothing. Was he even heard? He curls up into a corner to wait, water sloshing and rising ever higher. His air bubble can't last forever.

Help will come, he silently recites to himself. *Help will come. Help will come.*

And this thought, too: *Maybe I've been abandoned.*

TO THE RESCUERS' SURPRISE, relief and joy, they did eventually hear the sailor shouting back. But for the safety of all, they had to put on hold any attempt to rescue him until the next morning. The question was: Would he still be alive when they did? Time was not their ally. Laurent could die from exposure, or he could drown. But they had no choice.

That evening, a representative from France's Ministry of Defence phoned Virginie Philip, but she assumed it was a telemarketer and didn't answer. When she checked the message 15 minutes later, she heard a voice telling her that Laurent's emergency beacon had been set off. Her world fell apart.

THE SLOSHING WATER HAS FILLED MORE SPACE, SHRINKING LAURENT'S AIR BUBBLE.

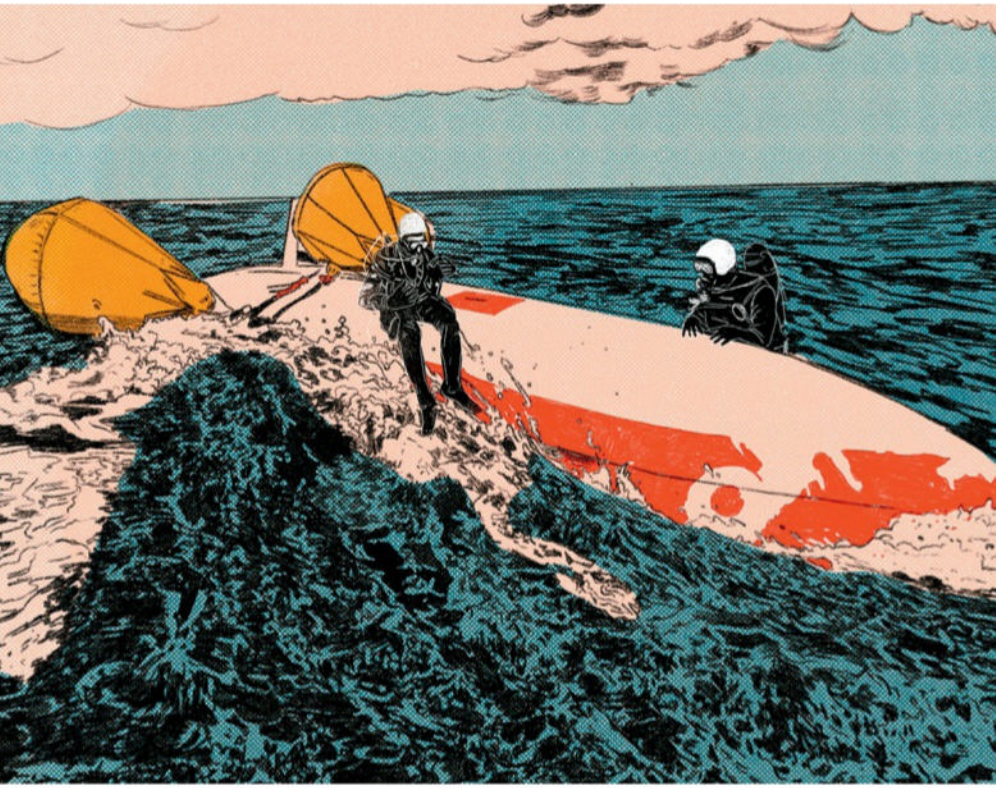
"Is Laurent okay?" she asked, when she called back.

"We don't know," came the reply.

And so, the waiting began.

The couple's daughter, 12-year-old Jeanne, stayed beside her mom while her 3-month-old brother, Paul, slept. Virginie called Richard Sautieux, Laurent's friend and sailing team manager, to see if he could help find out what was happening. At midnight, she received an update from the organizer of the Route du Rhum: All he could tell her was that the boat had capsized, and the Spanish coast guard was involved.

Trying to tamp down her panic, Virginie focused on being calm in front of Jeanne, who eventually fell asleep. The hours seemed like years, as the clock

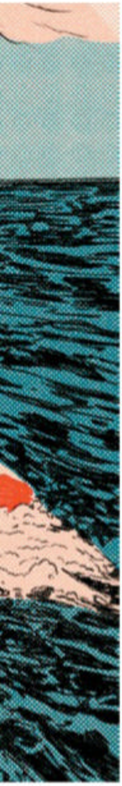


ticked past 1, 2, 3, 4 a.m. Then, just past 8 a.m., her phone rang again. It was the Ministry of Defence calling back with bad news: The chance of finding Laurent alive was practically zero.

It was time to tell Laurent's family what was happening. On automatic pilot, Virginie started by calling his brother, who told her that Laurent was too stubborn to give up.

"He will fight to the end," he told Virginie. "Trust me, if anyone is going to survive something like this, it's him." On one level, Virginie agreed. Certainly, the man she had been with for 14 years lived large and took risks—but he'd never been one to panic when bad things happened. And right now, she had no choice but to have faith.

IN THE CABIN OF THE *JEANNE,* Laurent is disheartened, and so tired. Water, still seeping and sloshing, has filled more space, shrinking his air bubble. The



water is also mixed with gas from an engine he had on board for emergencies—and, of course, never got a chance to use—and the smell of it is overwhelming. Not only that, his skin now stings and he has to keep his eyes shut tight to protect them.

Time means nothing now. Minutes and hours flow into each other, a jumble. It could be midnight, or later. Maybe it's 2 a.m.? He can't remember when he last ate or slept.

Don't think about that. Focus. Don't fall asleep.

He knows that the air bubble keeping him alive continues to shrink, and the water level has crept higher on his chest. With a grunt, he reaches out to grasp safety handles attached to the sides of the hull. He knows he needs to keep as much of himself out of the water as he can if he's to avoid hypothermia.

From time to time, Laurent tries to concentrate on listening for a sound—anything that signals the coast guard has not given up on him. But there is only quiet.

Images of his life crowd his mind. Not his life flashing before his eyes, but the things he will miss. Things like conversations with his three adult children from his first marriage. And also what he won't get to be there for: baby Paul saying "Papa" for the first time, and taking his first steps. Jeanne. Smart, with long brown hair pulled back in a ponytail, wide-set eyes and a beautiful smile, graduating from middle school.

By now, Laurent has been gripping the handles for hours, and he's exhausted. He lets go of them. He's floating on his back, finally resting, arms and legs splayed. But when the water laps over his face, he sputters, and is alert again.

And then he hears knocking. *Am I hallucinating? Please, let this be real.*

LAURENT WAS THROUGH THE DOOR LIKE A SHOT, POWERING AGAINST THE RUSHING WATER.

JUST BEFORE 9 A.M., roughly 13 hours after Laurent's boat flipped, two divers made their way to the *Jeanne* in calmer waters to help secure the boat with three enormous yellow buoys. The idea was to keep the boat afloat while the team conducted either a rescue or a salvage operation. When it was secured, the divers knocked on the hull. They didn't expect to get a response, but suddenly they heard shouting. Against all odds, against the mercurial sea and the wind that had flipped him over, Laurent Camprubi was alive. Diving below the surface to peek in the cabin window, they saw his red neoprene booties moving.



Clockwise from top left: Inside the waterlogged cabin; the battered *Jeanne*; Laurent and family; Laurent and the buoys that kept his sailboat afloat.

But here was the problem: There was so much detritus floating underneath the hull, jagged pieces of broken wood and metal, and wires, that divers could not access the door to the cabin. So, they began the painstaking job of diving under, again and again, to clear a path to Laurent.

They had to be very careful not to get injured as they did so. Bit by bit, minute by agonizing minute, one hour flowing into a second hour, then a third, they collected and disposed, rising to the surface when a bag was full, then diving down again.

You have to stay alive, Laurent told himself. *They have to make it.* But he knew that now was not the time to start doubting his rescuers.

They did have a plan, and as one of the helicopters positioned itself above the *Sar Gavia,* a 40-metre tugboat that shone bright-orange in the summer sun, a diver knelt on top of the hull of the sailboat, explaining in shouts to Laurent what they needed him to do.

Laurent learned there would be no helicopter to lift the *Jeanne* up because the vessel was already in pieces. That no divers would smash through the window to pluck him out because it wasn't big enough; besides, the water

COURTESY OF LAURENT CAMPRUBI

would rush in and then pull him under.

Tired and chilled from so many hours of exposure, his muscles cramping, Laurent understood that surviving this was still up to him. As soon as a diver opened the door, he would have to swim out fast, with everything he had, to avoid the torrent of sea water waiting on the other side to pin him down and drown him. He'd have just one chance.

The actual rescue began a little after noon. Laurent waited by the door, treading water, trying to stay calm but poised to break through when it opened. *You can do it,* he told himself. This was it: life or death.

He forced himself to breathe slowly as he waited—and suddenly, the door opened. *Go.* Acting on instinct, he was through it like a shot, swimming, using adrenaline along with his arms and bicycle-hardened legs to power against the rush of water.

He felt the adrenaline coursing through him, providing oxygen and new-found strength as he swam under the hull—*don't hit your head*—and then made a right turn to go up, up two metres to the surface, his eyes open and focused above him. When he broke through, gasping for air, a diver—the same one who had knocked on the hull the night before—was waiting and ready to attach a harness so the helicopter above could hoist him aboard.

The men embraced, in tears. "I was so afraid you wouldn't survive the night," the diver admitted. Laurent answered: "I was so afraid you wouldn't come back for me."

WHEN LAURENT BOARDED the helicopter that would take him to a hospital in the nearby Spanish coastal town of A Coruña, his legs buckled. It was 12:35 p.m.—more than 16 hours since the *Jeanne* had capsized.

Soon, he'd be treated for exposure and hypothermia, and doctors would flush the gasoline out of his eyes. He would learn that he'd lost seven kilograms during those 16 hours.

But on the helicopter, none of that mattered. All he wanted was to talk to Virginie. When someone on board finally handed him a phone, he could barely speak to his partner—they were both crying so hard.

Next Goal Wins

Develop success from failures. Discouragement and failure are two of the surest stepping stones to success.

DALE CARNEGIE

Go confidently in the direction of your dreams. Live the life you have imagined.

HENRY DAVID THOREAU

Saving Lungs, Saving Lives

Two Canadian doctors are extending the best-before dates on transplants

BY *Karin Olafson* FROM *THE WALRUS*



Dr. Darren Freed and Dr. Jayan Nagendran at the Mazankowski Alberta Heart Institute in 2017.

MADELINE STROUP WAS looking forward to a weekend away at her family cabin in the Okanagan-Similkameen region of B.C., with her boyfriend, Hayden Turcotte, and friend Tyrell Gait. That Friday in July 2019, the group began the roughly four-hour drive east from the city of Maple Ridge, outside of Vancouver. Less than an hour after their departure, an SUV sped through a stop sign and crashed into the driver's side of their car.

Turcotte, the driver, died instantly. Gait had minor injuries. For Stroup, in the passenger seat, the impact resulted in serious head trauma, and she was airlifted to the Royal Columbian Hospital in New Westminster. In the ICU, Stroup remained unconscious. She was 23, so doctors were hopeful that she would come out of the coma. As everyone waited, the nurses did everything they could to care for Stroup. They carefully washed and braided her light-brown hair. They talked to her.

Four days after the accident, tests showed that the swelling in Stroup's brain had significantly worsened. Now, there was no chance the young woman would wake up.

Previously, Stroup had signed her name to the provincial organ donor registry. So, for the next three days, she was kept on life support as hospital staff ran tests to determine how well her heart, kidneys and liver were functioning and to see if she was a match for any recipients on the transplant waiting list. She was, and saved five lives.

But she had sustained chest injuries in the accident, and despite Stroup having consented to also give away her lungs, tests showed that they were too damaged to transplant.

MANY PEOPLE HOPE to donate their organs after death, but some never get to complete this final act of service. Canadian Blood Services estimates that 32 percent of Canadians have registered their decision about whether to donate. But only about one or two percent of deaths in hospital happen in a way that allows for organ donation. And registered donors who die outside a hospital typically can't donate their organs since the tissue can't be monitored or transported fast enough to keep it viable.

Transplant doctors refuse donor lungs with infections, like pneumonia, as well as lungs with blood clots or tumours. Other times, the donor and the recipient might be in different cities, and the hours it takes to fly or drive

(PREVIOUS PAGE) LAUGHING DOG PHOTOGRAPHY

the tissue to another hospital increases the risk that the organ will no longer be healthy enough.

Transplant surgeons need to be cautious, says Dr. Jayan Nagendran, the surgical director of lung transplantation at the University of Alberta Hospital and an associate professor in the department of surgery at the University of Alberta. “Right now, we can’t really assess donor organs well. There is no way to check whether an organ’s function plummeted in the hours between its removal from the donor and transplantation,” says Nagendran.

the first jurisdiction in North America to enact a “deemed consent” or “presumed consent” policy, which holds that all medically eligible individuals (those over the age of 19, who have lived in the province for more than 12 months) can have their organs donated when they die unless they opt out.

Other provinces have been discussing such a law for years, but no legislation has been passed. According to the World Health Organization, countries with opt-out laws have donation rates 25 to 30 percent higher than those requiring donors to opt in.

OF THE 200-PLUS PATIENTS IN CANADA ON WAITING LISTS FOR A LUNG TRANSPLANT, ONLY ONE IN THREE RECEIVE ONE.

And transplanting a sick or injured organ into a recipient who is already ill could have catastrophic consequences.

All of this means that we’re not saving as many lives as we could be. In 2020, more than 4,000 patients in Canada were awaiting a transplant; 276 of them died that year, up from 250 in 2019. As life expectancy has increased in recent decades, so too has the need for organs. Part of the problem is that the pool of transplant candidates is too small to begin with.

One province has taken legislative steps to deal with the problematic shortage. In 2021, Nova Scotia became

But legislative changes won’t address why so few of the organs already available can be used. This problem is particularly acute with lung transplants. Although more Canadians experience liver and kidney failure than lung failure, patients waiting for lung transplants die at a disproportionately higher rate, with only one in three receiving the lifesaving organ. At the end of 2020, more than 200 patients across Canada were waiting for a lung transplant due to diseases ranging from cystic fibrosis to Covid-19, but just 20 percent of donor lungs from deceased patients are considered acceptable for transplant.

Now, new research is showing how matters could be significantly improved—not by expanding the pool of organ donors but by rescuing lungs that have been deemed too fragile or ill.

IN CANADA, DONOR organs are prioritized based on location; the University of Alberta Hospital's catchment area, for example, includes northern B.C., the Northwest Territories, Yukon, Alberta, Saskatchewan and Manitoba. This could mean a donor organ is quickly transported by ambulance, or it could mean a long flight from a remote region. The hospital's cardiothoracic transplant centre is the most geographically isolated in the entire world: No other similar program covers more than 5.5 million square kilometres.

Transplant teams travel to the hospital where the donor is located to evaluate whether the organ is viable for their patient. If it is, then the visiting medical team removes the donor organ, putting it in a special plastic bag and placing it in an insulated cooler full of ice. The organ is then transported to the transplant centre, but this presents a logistical challenge.

"There have been cases where I've gotten a call in the middle of the night from the operating room in Vancouver, and they say, 'Our team has decided not to take these lungs, would you use them?'" Nagendran says. "But my best recipient for those organs might be in Winnipeg. There's no way for me to coordinate that process in time."

This timing is particularly tricky for lungs, contributing to their high discard rate. On ice, lungs can survive six to eight hours, but after that there will be irreversible damage. The window is wider for donor livers, which can still be transplanted around 12 hours after removal, and kidneys, which can be used up to 36 hours after removal.

Finding a match; cross-country, inter-hospital communication; making sure the donor organ is transported back to the transplant centre before its function deteriorates; coordinating operating schedules: These are all obstacles. Factor in bad weather and flight cancellations and it's easy to see how the process can fall apart.

The system is still saving lives, says Nagendran, but it could be doing better. "In fact, most metrics would say it's not working well."

SEVERAL YEARS AGO, Nagendran and his colleague Dr. Darren Freed began to develop a new device to bridge the gap. The technology could not only keep donor lungs viable for longer but also improve the health of the organs.

In 2007, as a young cardiac surgeon in Winnipeg, Freed was frustrated to see that the supply of healthy donor hearts wasn't nearly large enough. His patients were dying while on the wait list, and so many of the hearts they were offered just weren't viable for transplantation. The way he saw it, increasing the donor organ supply meant somehow turning injured,

unhealthy hearts into healthy, transplantable ones. It meant finding a way to support those organs outside a human body while also evaluating how well they were functioning.

Freed, currently a cardiac surgeon and professor of surgery at the University of Alberta Hospital, began studying ex-vivo organ perfusion: the preservation of organs outside of the body, in a machine kept at body temperature and with blood continuously flowing through them.

At that time, there were few ex-vivo machines in existence, and most didn't help organs the way they should. They were difficult for doctors to use and too expensive for hospital administrators to justify purchasing, so it was rare to see this technology in hospitals.

"My approach to organ perfusion," says Freed, "has always been to replicate what the body does—our own physiology."

Freed bought old components of heart and lung machines off eBay, broke them apart in his garage and rebuilt them with slight changes. By 2013, he had moved to Edmonton and joined forces with Nagendran. The research continued, growing into an ex-vivo organ perfusion lab. In 2016, a donor consented to give their lungs to Freed and Nagendran for research purposes—and that changed everything. (Until that point, the pair had been using animal organs.)

"After about 24 hours of treating these human lungs on our device," recalls Freed, "they looked beautiful." The lungs, once riddled with pneumonia and rejected by transplant surgeons, now appeared transplantable.

That experiment was one in a series of experiments that resulted in a prototype they named the Ex-Vivo Organ Support System (EVOSS), a creation that exactly mimics how the human body functions.

UNLIKE ITS PREDECESSORS, THE EX-VIVO ORGAN SUPPORT SYSTEM EXACTLY MIMICS HOW THE HUMAN BODY FUNCTIONS.

"We saw that the way devices to date had treated the lungs was not the way you and I breathe," says Nagendran. "They force air into them by putting a breathing tube down the airways, like we do in the ICU," and this damages the lungs. "We breathe because our diaphragm contracts and our chest expands. Negative pressure draws air into our lungs."

Simply put, lungs function best in the environment they've always functioned in: one that is 37.4 C and in which air is pulled into the lungs rather than

pushed. In this warm, natural environment, Nagendran and Freed found that donor lungs could be preserved for up to 48 hours.

In 2018, the EVOSS went through its first clinical trial, in Edmonton, and the results were published in *Nature Communications* in November 2020. Twelve patients waiting for lung transplants were recruited to the study, and 12 pairs of donor lungs that were too damaged or unhealthy for transplantation were placed in the EVOSS. The outcome surprised even its creators.

In 2015, the pair co-founded their company, Tevosol, which designed a marketable prototype of the EVOSS in 2020. A black box with a removable tablet on one side, it looks remarkably like an air fryer (though its creators liken it more to a picnic cooler).

Nagendran says the EVOSS has the potential to improve both the quantity and quality of donor lungs in Canada. The two-day transplant window eases the time constraints surgeons typically face. Lungs that have been damaged because the donor was ill or injured

TECHNOLOGY THAT EXPANDS THE SUPPLY OF ORGANS COULD HELP TO AVOID THE ETHICAL GREY AREA OF PRESUMED CONSENT.

can be repaired: Sick lungs can get antibiotics, and blood clots can be removed with clot-busting medication. The EVOSS also displays data like blood pressure, oxygen level and elasticity, proving to doctors that the lungs are working well.

"We were able to convert all 12 into good quality organs," says Nagendran. One set of lungs in the trial was in such terrible shape—it was filled with fluid and unable to fill with air—that Nagendran wasn't sure its health would improve enough to enable a life-saving transplant. "But those lungs miraculously turned around in a couple of hours," he says.

"The fact that we don't use three-quarters of donated lungs means one in three of my patients waiting for lungs dies," Nagendran adds. "I feel that we may have saved at least three or four of those lives that would never have gotten an organ."

The founders say the EVOSS is set to launch commercially in Canada in 2023, subject to Health Canada approval, and later in other countries. Subsequent versions are in the works to hold hearts, livers, kidneys and limbs.

THE EVOSS ISN'T the only technology on the horizon to improve organ supply. Researchers are attempting to reduce

the immune system's rejection of donor organs by altering or removing the proteins that generate this response in a recipient, making organs universally donatable.

Scientists are also looking into the 3-D bioprinting of temporary organ structures, or scaffolds, to help repair tissue damage and even grow artificial organs. And aboard the International Space Station, scientists are manufacturing organs to research how gravity affects tissue building—knowledge that could be used to optimize the growth of new organs for transplantation.

Technology that expands the supply of organs could also help to avoid the ethical grey area of presumed consent. Marika Warren, an assistant professor in the department of bioethics at Dalhousie University, explains that not opting out doesn't necessarily signal consent to donate one's organs after death. "When consent is explicit, then we can be really clear in how we interpret that action," says Warren. "In the case of presumed consent, we're trying to interpret an inaction."

People who are hard to reach with public education and awareness campaigns, perhaps because they live in rural or remote regions or because English isn't their first language, are at risk of having their disadvantages compounded, says Warren. It's essential that the benefits of increasing the supply of donor organs don't come at a disproportionate cost to already marginalized groups.

Of presumed consent, Warren says, "I think the crux of the issue is: Is there a better way? And, if there is a better way that achieves the same or similar benefits without the human and ethical cost, then I would argue the ethical obligation is to go with that way."

For now, when a transplant does happen successfully, it can feel like a rare stroke of luck for a patient who's been waiting years for that moment. They have a second shot at life, and they're forever grateful to the donor who lost their own. Of course, for donors' families, that doesn't undo the accident or the illness. But, during a time of grief, knowing they fulfilled their loved one's final wish to save a life can, at the very least, bring some closure. R

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Time Is Relative

Count your age by friends, not years. Count your life by smiles, not tears.

JOHN LENNON

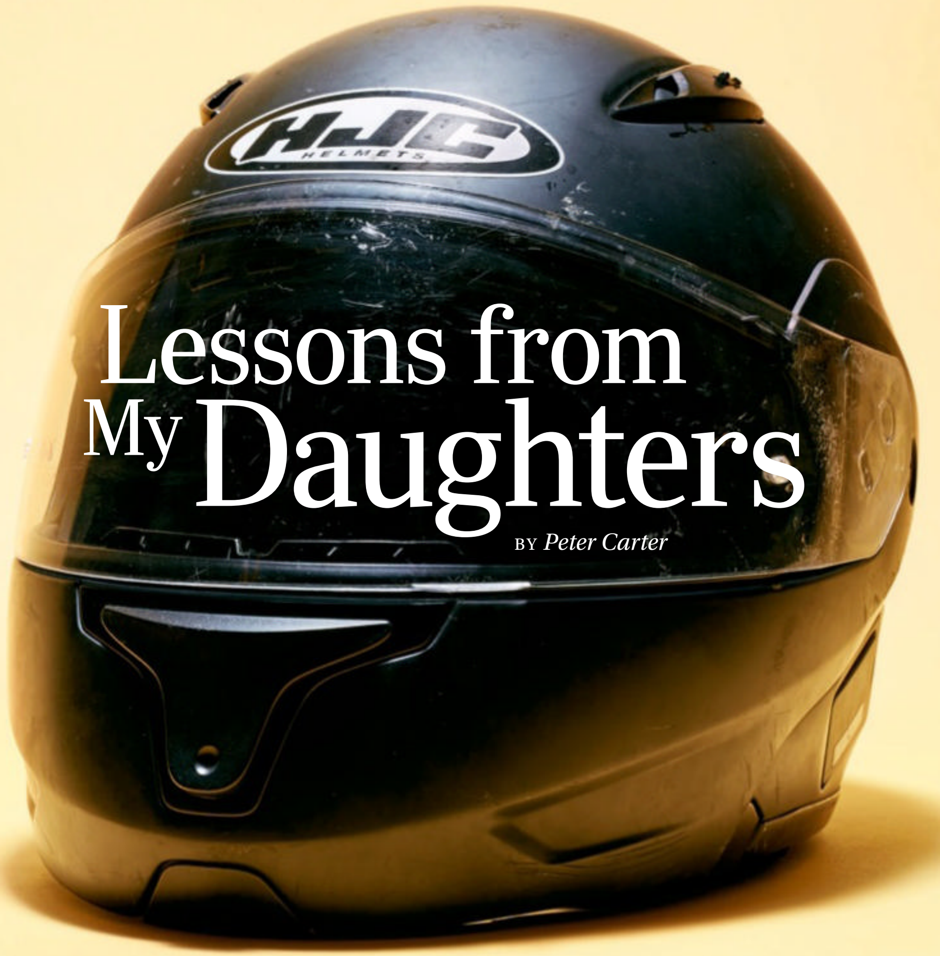
When we were small children, we all played dress-up and everyone had a good time. So why stop?

IRIS APFEL

Thanks to my all-grown-up girls, I've learned a whole new way to roll



PHOTOGRAPH BY *Jens Kristian Balle*



Lessons from My Daughters

BY *Peter Carter*

PHOTOGRAPH BY *Vicky Lam*

Like father, like daughter: Ewa's helmet, left, and Peter's, right.

One sunny Saturday afternoon in 2014, I was southbound on Highway 427 in Toronto aboard my purple 1993 Harley-Davidson Sportster. This stretch of road, some 20 kilometres long, is one of the busiest in North America. At certain points, there are 14 lanes of traffic, much of it moving at 110-plus kilometres per hour. I was in one of the centre lanes—keeping a close eye on an 18-wheeler about 100 metres ahead.

I wasn't worried for myself. I'd been biking for decades. My eyes were riveted on my 23-year-old daughter Ewa, a novice rider who was balanced on her recently purchased BMW F 650 GS. She was right beside that semi, in its dark shadow, looking as vulnerable as a snowflake. Thoughts swirled. *One wrong move, and our world ends. I am powerless to help her. I let this happen. Am I the worst father ever?*

Ewa, a student at the time, made it home safely and hasn't stopped riding since. She has put thousands of kilometres on that BMW, riding from our Toronto home east to Halifax, south to Tennessee and west to Vancouver in all types of weather and road conditions. The best part is that for exactly 8,208 of those kilometres, I've been riding with her.

I've had some stunning adventures with Ewa's identical twin sister, Ria, too. In fact, both of my girls have taken me places I never imagined I'd go.

One afternoon in August 2016, Ria, at the time a funeral director and now a

Peter Carter with daughter Ria at the Burning Man festival.





COURTESY OF PETER CARTER

student psychotherapist, arrived at our house. She told my wife, Helena, and me that she was taking me to a festival in the Black Rock Desert in Nevada called Burning Man. Our daughters had attended a few years earlier, frolicking in the desert with 70,000 stoned hippies.

And they'd decided, without consulting me, that 2016 was my year to go. Not only had Ria obtained a pair of hard-to-get tickets, she'd also paid our plane fare. If I didn't go, she'd be out $2,000.

So I said, "Okay." It would be worth finding out what my kids knew about their dad that I didn't.

Burning Man is for adventure-seeking west-coast types, computer whizzes from Silicon Valley, UCLA artists and other outside-the-lines colourers who have a taste for ecstasy (both the state of mind and the drug). Why did Ria think I should go?

The only drugs I take are for headaches and hay fever. I had been chair of the PTA at my kids' school and a family columnist at a women's magazine. A female friend once pegged me as a church-goin,' 2.5-kids-with-a-minivan type of guy. She was absolutely right.

WHEN WE ARRIVED IN NEVADA at Burning Man, it was dark; Ria and I soon got separated. As I searched for her the next morning, one of the first campers to greet me was a 30-something woman with long brown hair wearing absolutely nothing. (You may have guessed I was fully clothed.) She asked what I was looking for. I said, "My daughter."

"What you need is a hug," she said, and gave me one. "You'll find your daughter," she said. I did, a few hours later.

Burning Man takes place in a temporary city where attendees (called "burners") shed normal life and throw a nine-day party that culminates in the burning of a giant wooden statue. Everybody travels around the site on sparklingly decorated bicycles, and the music only stops for a few hours around dawn, when most of the crowd is sleeping off the night before. Money rarely changes hands; the only things you can buy are ice and coffee. Otherwise, people share their food, booze—and, um, what have you—with complete strangers.

AT THE BURNING MAN FESTIVAL, YOU NEVER KNOW WHAT MARVEL YOU'LL FIND AROUND THE NEXT CORNER.

You never know what marvel you'll find around the next corner. One mobile art installation was the fuselage of a full-sized, decommissioned 747. Imagine a *Mad Max* setting with pop-up concerts, *Cirque du Soleil*-calibre gymnastic displays, tantric sex workshops and a 10-metre-high wooden pirate ship—peopled by a few dozen Champagne-swigging "burners"—moving through the central plaza like a Trojan Horse.

But the most important part? Burning

Man was a parenting milestone. Ria gave me the experience of a lifetime. To this day I can't stop telling people about it.

WHEN IT COMES TO HIGH-PROOF fathering lessons, though, few adventures compare to the motorcycle trips I've shared with Ewa.

Our first journey, in August 2017, was a winding ride around the Catskills and Finger Lake districts of New York state. We avoided big highways and spent the week on twisty scenic back roads. At one point, I found myself riding alongside a Catskills meadow not far from Woodstock, keeping pace with a fawn and yelling "Go Bambi, go!"

WE BIKED TO A TOWN CALLED BAD AXE SIMPLY BECAUSE IT WAS A TOWN CALLED BAD AXE.

On our second day in, we stopped in a small town for ice cream. I asked the woman at the picnic table next to us: "What's the name of this town?"

"Interlaken," she answered. "Where are you trying to get to?"

Me: "We don't know."

It occurred to me then that I'd always wanted to do this no-schedule kind of trip, when you ride just for the sake of riding. Ask any middle-aged motorcyclist: We've all fantasized about doing the *Easy Rider* thing, tossing our wristwatches into the ditch and heading toward the horizon without a plan. Now, travelling with no destination became a trademark of my rides with Ewa.

Since we almost never knew where we were going, we were almost never disappointed when we arrived. Pulling off the highway at the end of each day carried with it exhilaration. The reason to celebrate? We hadn't crashed!

Because the truth is, life on a motorbike is one close call after another. En route, riders must stay focused 100 percent of the time. A tiny patch of loose gravel can be fatal. I used to say I found it nerve-rattling, but Ewa had a different take: "To me, motorcycling is like meditation."

And I came to realize she was right. At the end of a day's riding, after checking into whatever roadside, family-run inn we'd picked, I'd be exhausted—but mentally clearer than ever. After a roadhouse meal and a Budweiser or two, sleep was never elusive.

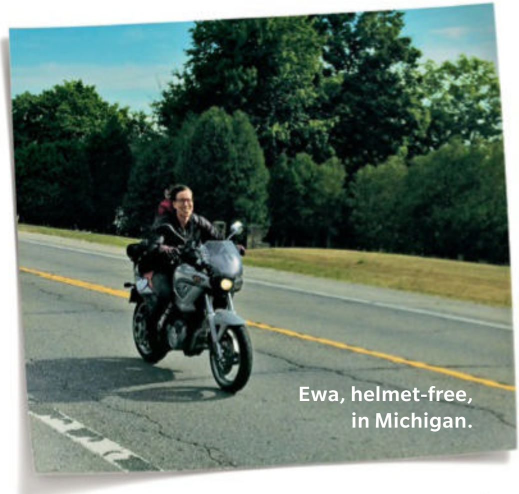
ONE SUMMER, WE TOURED northern Michigan. That odyssey included a stop to ask directions at the Big Ugly Fish Tavern, whose claim to fame is being the dive-iest bar in Saginaw. It also involved the scary thrill of riding a couple of kilometres with no helmet, which is legal for adults in Michigan, albeit with insurance conditions. We also biked to a town called Bad Axe simply because it was a town called Bad Axe.

There were a few exceptions to the

COURTESY OF PETER CARTER



Peter Carter and daughter Ewa on a road-trip break in British Columbia.


Ewa, helmet-free, in Michigan.

no-destination rule. On our 2019 trip, after riding south from Toronto for two days, Ewa and I arrived in a town called Deal's Gap, North Carolina. That was the starting point of the infamous Tail of the Dragon, a "must-ride" for any motorcyclist: It's 17 kilometres on two narrow lanes and has more than 300 curves. Much of one side is a wall of mountain, the other a sheer drop—and there are no guardrails. A sign at the beginning of the route reads "High Motorcycle Crash Area next 11 miles."

As if to prove the sign right, about 15 minutes into the route my front wheel hit the dirt beside the pavement; I lost control and drove clumsily down into the shallow grassy ditch, juddering to a stop. Since 50 metres further there was no ditch—only a cliff—my "incident" could have been a lot worse. The only thing hurt was my ego.

Had I known how challenging the Tail of the Dragon was going to be, I would not have ridden it. I am a boringly cautious motorcyclist. The Dragon was Ewa's suggestion, and I'm from-the-bottom-of-my-heart grateful that she led me down that path. The route was an absolute thrill ride and my minor wipeout only added to the excitement.

In August 2020, Ewa moved from Toronto to Vancouver to work as an American Sign Language interpreter. She rode her bike west and I accompanied her for the first 1,300 kilometres across the north shore of Lake Superior. Ewa had been going through a rough time emotionally and wanted to cover the remaining 3,000 kilometres solo. So right there at the top of the world's largest freshwater lake, we hugged, and she headed west while I turned east.

A few hours later I hit a tricky part of the highway, steep and coiling, and one section actually had me riding west once again, staring straight into the blinding sunset. I realized through teary eyes that the twists and turns on this stretch pretty much summed up my emotions as I saw my daughter ride off that day.

THE NEXT YEAR, 2021, our week-long bike trip in southern British Columbia coincided with some of the worst forest fires the area has ever seen. I met Ewa in Vancouver, and we headed north on the Sea-to-Sky Highway, past Whistler, past Pemberton, on to Cache Creek—where we

COURTESY OF PETER CARTER

found ourselves between mountains on fire. We'd had no idea what we had been riding into; the fires happened so fast. The valleys seemed consumed by flames.

The next day, as we made our way northwest along Highway 16, we were handed striking reminders of whose backyard we were biking through: First, a huge brown bear crossed right in front of us, and then, a few kilometres later, a sleek tan-coloured cougar.

Three days later we reached Prince Rupert, almost to the top of the province's coast, and boarded the posh *Northern Adventure* ferry for a scenic 16-hour cruise to Port Hardy on Vancouver Island.

What made this trip so special was not just that it was the first for which we actually had a plan—it was that Ewa took it on herself to be the planner. We didn't even have a conversation about it; she just took care of it all.

I'm the father; wasn't I supposed to plan the family holidays? But Ewa had not only arranged to borrow the bike I was riding from a friend, she organized the itinerary and even purchased the ferry tickets. She wouldn't let me pay.

A baton had been passed from one generation to the next. Wordlessly. I did not see that coming.

MY OLD HARLEY HAS NO GAS GAUGE. When the main gas tank is empty, the bike slows. You reach down with your left hand and switch to the much smaller auxiliary tank. At that point you have only a few kilometres' worth of gas left.

You'd think that after all these years I would know better than to run out. But there I was, on the first day of one of my annual trips with Ewa, on a lonely stretch of highway leading towards the U.S. border at Sarnia, Ont., and my bike sputtered to a stop. There were no homes or businesses in sight.

Ewa was getting smaller as she headed into the distance, not realizing she was riding alone. When she finally noticed I was no longer in her rear-view mirror, she turned back. As a father, it's humbling to be in that position.

Throughout my adult life, in raising my kids I've followed my own parents' lead: I stood aside and offered support while Ewa, Ria and their younger brother, Michel, found their own way in life. I seldom said "no."

But when Ewa said she wanted to wait with the out-of-fuel bike on the side of the country road while I went for gas, I said no way. I would not leave her vulnerable out here for goodness knows how long. She insisted, but I was firm, and Ewa finally gave in and went off in search of gas.

Because no matter how old your kids get, you never stop being a dad. R

In Praise of Education

The only true wisdom is knowing you know nothing.

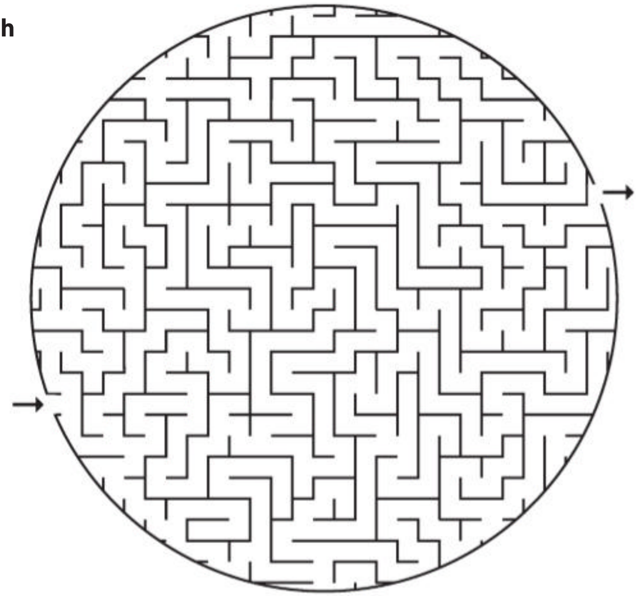
SOCRATES

Brain GAMES

SHARPEN YOUR MIND

Labyrinth

EASY



Fauna Farce

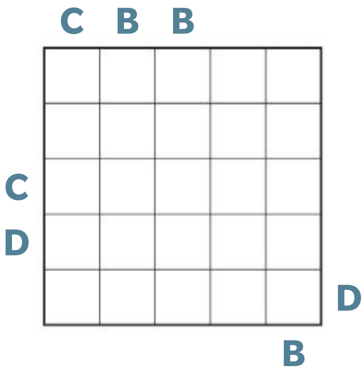
MEDIUM All flounders are flatfish. Some flatfish are freshwater fish. Flamingos only make friends with freshwater fish. If a fish is a flamingo's friend then it is a frog's foe. Flounders have either four fins or five. Five-finned flounders fear frogs. Four-finned flounders are not freshwater fish.



One of these "facts" does not follow. Find the falsehood:

- ✦ Some fish that fear frogs are flatfish.
- ✦ Flamingos will not make friends with all flounders.
- ✦ If a freshwater fish is a flounder it has five fins.
- ✦ Some frogs have five-finned flounders as foes.

LABYRINTH BY LOUIS-LUC BEAUDOIN; FAUNA FARCE BY DARREN RIGBY

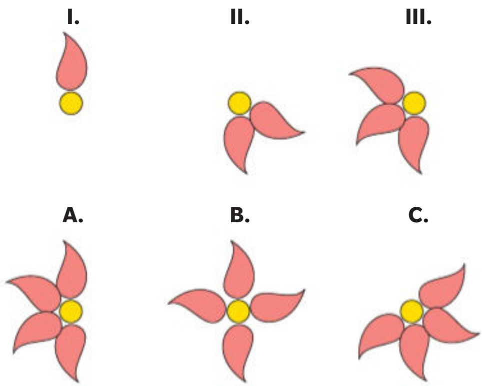


First In

DIFFICULT Place the letters A, B, C and D into this grid so that each letter appears exactly once in each row and column, with one cell in each row and column left blank. Each letter outside the grid indicates the letter that must appear first in its respective row or column (reading in from the edge of the grid closest to the letter, and skipping any blank cells). Can you complete the grid?

Petal Problem

DIFFICULT The flower pictured right grows its petals one at a time in a specific pattern. Once it has its first petal (as shown in Phase I), it adds its next three petals following the exact same process. From these pictures of its progression, can you determine which of the three options (A, B or C) depicts what the flower will look like in Phase IV?



Do The Math

MEDIUM Use five mathematical symbols (+, −, ×, ÷, and √) to complete the equation. Use each symbol only once, and ignore the standard order of operations.

? 36 ? 4 ? 9 ? 3 ? 2 = 7

For answers, turn to PAGE 92

FIRST IN BY FRASER SIMPSON; PETAL PROBLEM AND DO THE MATH BY EMILY GOODMAN

SUDOKU

BY *Louis-Luc Beaudoin*

1				5		3		
	6				9	4		
			3					8
8			7				2	
	3		6					
			4		1	7		6
		5			6	2		
	9						4	1
7				2				3

To Solve This Puzzle

Put a number from 1 to 9 in each empty square so that:

✦ every horizontal row and vertical column contains all nine numbers (1-9) without repeating any of them;

✦ each of the outlined 3 x 3 boxes has all nine numbers, none repeated.

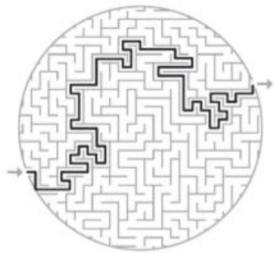
SOLUTION

1	7	8	2	5	4	3	6	9
5	6	3	8	1	9	4	7	2
9	2	4	3	6	7	5	1	8
8	1	6	7	3	5	9	2	4
4	3	7	6	9	2	1	8	5
2	5	9	4	8	1	7	3	6
3	8	5	1	4	6	2	9	7
6	9	2	5	7	3	8	4	1
7	4	1	9	2	8	6	5	3

BRAIN GAMES ANSWERS

FROM PAGE 90

Labyrinth



Fauna Farce
The fourth. (Some frogs have five-finned flounders as foes.)

First In

C	B		A	D
A	D	B		C
	C	D	B	A
D		A	C	B
B	A	C	D	

Petal Problem
B. Each of the flower's petals rotates clockwise by 120 degrees, then a new petal is added at the bottom.

Do The Math
$\sqrt{36} \times 4 - 9 \div 3 + 2 = 7$

WORD POWER

Game on! A good vocabulary helps when playing Wordle, the internet sensation that gives players six guesses to identify a five-letter word. The same goes for this quiz, which features past Wordle answers. Will you want to share your success on social media—or erase your stats? When you're done, turn the page for the answers. Ready? Begin!

BY *Rob Lutes*

1. aphid *n.*
A sap-sucking insect
B algae-eating fish
C flowering shrub

2. egret *n.*
A bad decision
B small cove
C white heron

3. smite *v.*
A strike sharply
B secure with rope
C ascend

4. leery *adj.*
A intoxicated
B wary
C poorly made

5. tapir *n.*
A Velcro-like fastener
B nocturnal mammal
C ceramic cookware

6. duchy *n.*
A land of duke or duchess
B savoury puff pastry
C motorized bicycle

7. tilde *n.*
A whirlpool
B accent used in Spanish
C tiered fountain

8. axiom *n.*
A bridge support beam
B subatomic particle
C established truism

9. biome *n.*
A biogeographical unit
B group of stars
C couples' yoga

10. whelp *n.*
A scar
B puppy
C slap

11. abase *v.*
A defend
B remove
C humiliate

12. moult *v.*
A shed feathers or skin
B move lethargically
C enter a state of disarray

13. grimy *adj.*
A uninviting
B covered with dirt
C pained

14. agate *n.*
A arched doorway
B sour berry
C ornamental stone

15. rebus *n.*
A riddle that uses pictures
B twin
C male crow

The Next Generation

Already finished today's Wordle? Try Quordle to guess four words simultaneously, or Artle, which asks art buffs to name an artist based on four of their works. Heardle has music lovers name a song after hearing as little of it as possible.



Word Power ANSWERS

1. aphid (A) *sap-sucking insect*
Drought conditions led to an aphid infestation that threatened the potato crop.

2. egret (C) *white heron*
From the shore, Luis watched the egret catch multiple fish in the shallows.

3. smite (A) *strike sharply*
The knight brought his sword down to smite the beast.

4. leery (B) *wary*
Sandro was leery of Terry the cat, who always seemed ready to pounce.

5. tapir (B) *nocturnal mammal*
During her hike in Patagonia, Freya saw a rare tapir munching leaves just off the trail.

6. duchy (A) *land of duke or duchess*
The Duchy of Cornwall includes land and business interests worth more than $1 billion.

7. tilde (B) *accent used in Spanish*
Ava would have aced the exam but for a missing tilde on the word *señor*.

8. axiom (C) *established truism*
The axiom that a large fire can come from a tiny spark proved true when Max's cigarette caused an inferno.

9. biome (A) *biogeographical unit*
The tundra biome is home to woodland animals such as caribou.

10. whelp (B) *puppy*
At the sound of the train, the whelp retreated behind its mother in fear.

11. abase (C) *humiliate*
Stephano refused to abase himself, so he quit the demeaning job after one day.

12. moult (A) *shed feathers or skin*
Blue jays moult roughly once a year.

13. grimy (B) *covered with dirt*
The cottage was grimy, but the teens didn't mind.

14. agate (C) *ornamental stone*
The multicoloured agate statuette took pride of place on the mantle.

15. rebus (A) *riddle that uses pictures*
Zoltan made the scavenger hunt trickier by using rebuses for the clues.

Vocabulary Ratings

9 & BELOW: Phew
10–12: Splendid
13–15: Genius

(MOBILE PHONE) ISSARAWAT TATTONG/GETTY IMAGES; (*FLOWERS IN A ROCOCO VASE* BY PAUL CÉZANNE) COURTESY NATIONAL GALLERY OF ART, WASHINGTON

TRIVIA



BY *Beth Shillibeer*

1. What video-game series did actress Anya Taylor-Joy play in order to research a 2023 role?

2. What are King Charles and Emperor Naruhito of Japan not required to have when travelling internationally?

3. What fresh fruit has the highest protein content, with 4.2 grams per cup?

4. New Zealand may join Austria, Brazil, Cuba, Malta and Scotland in allowing what for 16-year-old citizens?

5. Hatha, Kundalini and Yin are variations on what kind of physical activity?

6. Father's Day is often celebrated in June. When does Australia celebrate it?

7. The Atlantic coastlines of Newfoundland and Labrador host what kind of visitors, which arrive in the spring and leave by the end of June?

8. In what year is India predicted to surpass China in population?

9. What South American leader has promised to deliver a greener future by leaving fossil fuels in the ground?

10. Pheasant Island has a moving border. It flies the flags of what two countries, for half a year each?

11. Bill Scanlon and Yaroslava Shvedova are the only tennis champions to achieve what in a professional tennis match?

12. What kind of "personnel" did NASA send on its first Artemis mission in 2022, naming them Commander Moonikin Campos, Helga and Zohar?

13. New research claims that sea sponges do what, expelling nutrients into the surrounding water?

14. What ancient culture considered the summer solstice as the beginning of the year and the start of a 30-day countdown to the Olympic games?

15. The U.K.'s Sarah Bentley was promoting what when she said, "You are one ride away from a good mood"?

Answers: 1. Super Mario Bros. (she plays Princess Peach). **2.** A passport. **3.** Guava. **4.** Voting. **5.** Yoga. **6.** September. **7.** Icebergs. **8.** 2023. **9.** President Gustavo Petro of Colombia. **10.** France and Spain. **11.** Golden set (no points lost). **12.** Mannequins. **13.** Sneeze. **14.** Greek. **15.** Cycling.

STOCKCAM/GETTY IMAGES



A TRUSTED FRIEND IN A COMPLICATED WORLD

Lost and Found by Deshi Deng, exclusively for *Reader's Digest*



LAUGH MORE. LIVE HEALTHIER. SPEND LESS.

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